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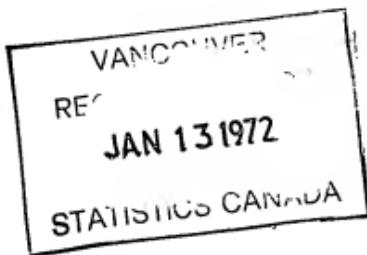
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The Growth of Manpower in Canada

BY FRANK T. DENTON



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The Growth of Manpower in Canada

by
Frank T. Denton

ONE OF A SERIES OF LABOUR FORCE STUDIES
in the
1961 CENSUS MONOGRAPH PROGRAMME

DOMINION BUREAU OF STATISTICS
OTTAWA, CANADA
1970

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Foreword

The Canadian Censuses constitute a rich source of information about individuals and their families, extending over many years. The census data are used widely but it has proved to be worthwhile in Canada, as in some other countries, to supplement census statistical reports with analytical monographs on a number of selected topics. The 1931 Census was the basis of several valuable monographs but, for various reasons, it was impossible to follow this precedent with a similar programme until 1961. Moreover, the 1961 Census had two novel features. In the first place, it provided much new and more detailed data, particularly in such fields as income, internal migration and fertility, and secondly, the use of an electronic computer made possible a great variety of tabulations on which more penetrating analytical studies could be based.

The purpose of the 1961 Census Monograph Programme is to provide a broad analysis of social and economic phenomena in Canada. Although the monographs concentrate on the results of the 1961 Census, they are supplemented by data from previous censuses and by statistical material from other sources. The present Study is one in a Series on the Canadian labour force. In addition to these Labour Force Studies, monographs have been or will be published on marketing, fertility, urban development, income, immigration, and internal migration.

I should like to express my appreciation to the universities that have made it possible for members of their staff to contribute to this Programme, to authors within the Dominion Bureau of Statistics who have put forth extra effort in preparing their studies, and to a number of other members of DBS staff who have given assistance. The Census Monograph Programme is considered desirable not only because the analysis by the authors throws light on particular topics but also because it provides insight into the adequacy of existing data and guidance in planning the content and tabulation programmes of future censuses. Valuable help in designing the Programme was received from a committee of Government officials and university professors. In addition, thanks are extended to the various readers, experts in their fields, whose comments were of considerable assistance to the authors.

Although the monographs have been prepared at the request of and published by the Dominion Bureau of Statistics, responsibility for the analyses and conclusions is that of the individual authors.

Harold E. Suyett.

DOMINION STATISTICIAN.

Preface

This study is one of a series dealing with selected aspects of the labour force in Canada as revealed, in large measure, by the 1961 and earlier Censuses. The study is concerned with the growth of Canadian "manpower," a term that is used in the title in preference to the technically more precise term "labour force" in order to suggest a rather broad definition of the subject of interest. The growth of the labour force since the middle of the nineteenth century is examined in the more general context of population growth. The contributions of international migration and changes in birth and death rates are considered. Attention is paid to important changes in the composition of the population and the labour force which are related to growth, including changes in age structure, male-female ratios, rural-urban and farm-nonfarm shares, the labour force participation of men and women, and regional or provincial distributions. Special consideration is given to the period since World War II, thus taking advantage of the greater abundance of statistical information for that period. With a view to making the study somewhat more relevant to the situation in Canada at the time of publication, consideration is given to some developments that occurred between 1961 and 1966 as well as to those of the earlier postwar period.

While taking full responsibility for any errors or deficiencies in the study, the author wishes to express his appreciation to various members of the staff of the Dominion Bureau of Statistics for assistance in obtaining data and to Dr. Sylvia Ostry, Dr. Leroy Stone, and Mr. Walter Zayachkowski, also of DBS, for helpful comments and suggestions pertaining to various aspects of the study. Special mention must be made of the many valuable discussions that the author had with the late Dr. Yoshiko Kasahara in connection with problems of demographic analysis and interpretation.

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Professor of Economics, McMaster University

HAMILTON, 1968

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1. Introduction

The record of labour force growth which it has been possible to compile goes back only to the middle of the nineteenth century but the population record goes back much further. The labour force does not vary strictly in unison with population; changes in age distributions and other factors result in differences in rates of growth and these factors will be considered below. However, the patterns of growth are similar in broad outline, especially over long periods. With this in mind, the present study begins with a survey of historical changes in the size of the Canadian population. This permits a longer historical perspective than would be possible if attention were to be confined to the labour force series alone. It also has the advantage of providing a more general background of Canadian growth and development against which to view the changes in the labour force.

2. *A Survey of the Population Record*

Historical statistics of population were assembled from various sources at the time of the first census following Confederation. Further research and assembly of documents led to a revised and more elaborate statement published in connection with the 1931 Census.¹ As a result of these labours there exists a record of the non-aboriginal population of Canada extending back to the beginning of the seventeenth century. It is true that the numbers for earlier periods are rough approximations at best; even in the modern era the measurement of population is by no means free of error. Nevertheless, the data which have been gathered together, and on which this section draws heavily, provide a valuable picture not only of a developing population from its earliest stages, but also, by reflection, of the historical events and circumstances associated with its development.

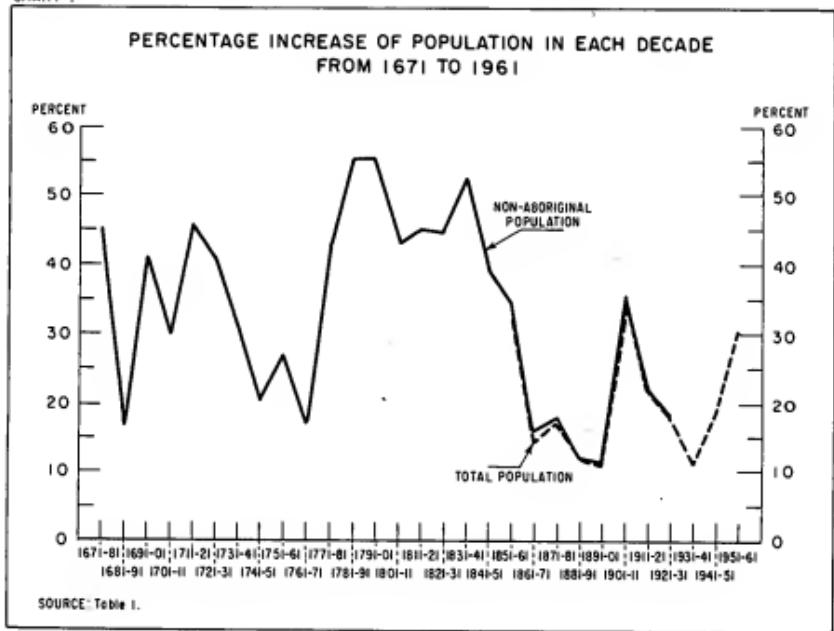
The tiny colony of Port Royal was founded in 1605 by forty-four settlers, the hardy survivors of seventy-nine who had spent the preceding winter on the Île Sainte-Croix. In 1608, Quebec was founded by twenty-eight persons, including Samuel de Champlain. By 1630, the non-aboriginal population of Canada may have numbered a hundred. Such were the beginnings.

Population growth was well established by the middle of the seventeenth century. The one-thousand mark was probably passed in the 1650's, the ten-thousand mark around 1680, and the hundred-thousand mark around 1770. By 1830, the population had grown to about a million — a further ten-fold increase in sixty years — and by 1860, a few years before Confederation, it had risen to around three million. Reaching five million about 1900, it then doubled in the first three decades of the twentieth century and almost doubled again in the next three-and-a-half: the 1966 Census revealed a total of 19.5 million, if we exclude Newfoundland to achieve comparability with the figures for earlier dates.

The population has grown continuously since the beginning. For no decade does the record reveal a decline, and indeed there is no instance of an increase of less than 10 per cent. However, the rate of increase has been highly variable. This is evident from Chart 1 in which are displayed the growth rates for the non-aboriginal population in the twenty-six decades between 1671 and 1931 and for the total population in the eleven decades between 1851 and 1961.

¹ See Dominion Bureau of Statistics, "The Growth of Population in Canada," 1931 Census of Canada, Vol. I ("Summary"), Part II, Chapter 1, King's Printer, Ottawa, 1936. Considerable use is made here of the material in this article.

CHART I



SOURCE: Table I.

Several phases may be distinguished. The half-century from about 1690 to 1740 was characterized by high rates of growth: for three of the five decades the estimated rates exceed 40 per cent and for the other two they are close to 30 per cent. This was followed by roughly three decades in which the rate of increase was much lower. Then, in the 1770's, with the coming of the United Empire Loyalists and the redirection of a substantial part of British emigration as a result of the American Revolution, there began a prolonged period of very rapid growth. Sustained through the 1830's and 1840's by heavy immigration from the economically distressed British Isles — in particular Ireland and Scotland — this period lasted for some ninety years. Rates in excess of 40 per cent have been estimated for every decade between 1771 and 1841, and in three cases the rates exceed 50 per cent. For the two subsequent decades, 1841-51 and 1851-61, the rates are still well above 30 per cent.

The last four decades of the nineteenth century constituted a period of relatively slow growth, by Canadian historical standards, slower than in any other period of comparable duration and in sharp contrast to the preceding nine decades. Then, in the early years of the present century, with the opening of Western Canada for settlement and an unprecedented flow of immigrants, there was a sudden spurt. From 1901 to 1911, the population increased by almost 35 per cent and the boom continued until the

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outbreak of World War I in 1914. However, this pace was not maintained after the war. The rate of population increase fell below 20 per cent in the 1920's and stayed there until the 1950's, when once more it rose to the vicinity of 30 per cent.

It is natural to look for statistical regularity in the population growth record. Even as early as the seventeenth century there is evidence of "cyclical" behaviour of a rough sort. From extremely high levels in the earlier decades, the rate of increase fell sharply in the 1670's and sharply again in the 1680's. It then rose in the 1690's and stayed at relatively high levels until a second decline began in the 1720's or 1730's. With one eye on the weaknesses of the statistics, one might suggest, with much caution, that there was a cycle in population growth which extended from a trough in the 1680's to a peak somewhere around the second decade of the eighteenth century and then to another trough in the middle of the century.

A second, more clearly discernible, and substantially longer cycle extends from about the middle of the eighteenth to the end of the nineteenth century. The high rates of growth which began in the 1770's, and which followed three decades of much slower growth, continued for some seventy years before showing the first clear evidence of decline. The rate of growth was still high in the 1840's and 1850's, but definitely on the way down. By the 1860's it had dropped sharply and, after a minor fluctuation in the 1870's, it fell still further in the 1880's and 1890's. Thus we have a period of about a century and a half which fits the classical growth-cycle pattern rather well — comparatively low growth rates in the beginning, an acceleration, the achievement of high rates maintained for a considerable period, and finally a deceleration.

A third cycle of a kind may be discerned in the twentieth century, although it is of much shorter duration and quite different in character from the one which we have just described. The low growth rates of the late nineteenth century were superseded by very rapid growth during the immigration boom before World War I. The rate of increase fell substantially after the war: in 1921-31 it was about 18 per cent and in 1931-41 it dropped to 11 per cent. Then in the 1940's, it rose, and in the 1950's it rose again. Thus the pre-World War I period might be regarded as a cyclical peak, the 1930's as a trough, and the 1940's and 1950's as the subsequent period of expansion. However, it is not the intention here to force a cyclical interpretation of the record. Special events — in particular, two world wars — have had a major influence on the pattern of population growth in this century. More generally, it is to be emphasized that the delineation of "cycles" above is merely a convenient descriptive device rather than an attempt to infer anything basic about the processes of population growth.

3. *Growth of the Labour Force*

The Canadian labour force numbered between 700,000 and 800,000 at the middle of the nineteenth century: a figure of 762,000 has been arrived at for the census year 1851, although this can be little more than a rough estimate.² It is probable that the total reached one million about 1860 and was approaching two million at the turn of the century. By the late 1940's it had reached five million and by the mid-1960's it was well over seven million. In less than a hundred and twenty years the labour force increased tenfold.

The broad outlines of growth between 1851 and 1961 are evident from Chart 2. Taking the period as a whole, the labour force has grown at an average rate of about 22 per cent per decade. In no decade was there a decrease and the smallest increase is estimated at almost 10 per cent. Increases greater than 20 per cent are estimated for five of the eleven decades, and for two, 1851-61 and 1901-11, the gains are over 35 per cent.³ In summary, labour force growth, like population growth, has been persistent, generally rapid, but highly variable from decade to decade.

It is also apparent from Chart 2 that the patterns of labour force and population growth are roughly similar over the period since 1851. Rapid increase between 1851 and 1861 was supplanted by much slower growth in the succeeding four decades. A sudden spurt in the early years of the twentieth century proved to be temporary and the growth rate subsided to moderate levels which were maintained until after World War II. However, there are some interesting differences, too. Taking the period as a whole, the labour force grew more rapidly than the total population in six of the eleven decades — just over half — but if one considers only the nine decades before 1941 the labour force grew more rapidly in all but three. Thus there was a tendency for the labour force to grow at a faster rate than the total population throughout most of the period from roughly the mid-nineteenth century until World War II.

An obvious consequence of the more rapid rate of labour force growth before World War II was a reduction of the ratio of dependants to working population. For every ten people who were in the labour force at the halfway mark of the nineteenth century there were probably about twenty-two outside the labour force. The number had dropped to eighteen by the beginning of

² See Frank T. Denton and Sylvia Ostry, *Historical Estimates of the Canadian Labour Force*, One of a Series of Labour Force Studies in the 1961 Census Monograph Programme, DBS, Ottawa, 1967.

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this century and to fifteen by the end of the 1930's. In the 1940's and 1950's it rose somewhat, reaching approximately seventeen by 1961.

CHART 2

PERCENTAGE INCREASE OF LABOUR FORCE AND POPULATION IN EACH DECADE FROM 1851 TO 1961



SOURCES: Tables 1 and 2.

One may speculate about the pattern of labour force growth before the middle of the nineteenth century. The cycles in population growth which have been considered above reflect, in the main, the effects of changes in the rate of immigration (that is, *net immigration*) rather than in the rate of natural increase, although the latter may have had significant effects in some periods as well. Also, as will be demonstrated below, the *fluctuations* in labour force growth rates — though not their average levels — in the period for which we do have estimates of these rates, 1851-1961, are chiefly a reflection of variations in the rate of immigration. In light of these considerations, it seems likely that the labour force experienced the same general pattern of development in the earlier period. That is to say, in particular, that the labour force, like the population, experienced a long growth cycle with an initial trough (in the rate-of-increase series) about the middle of the eighteenth century and a final trough in the latter part of the nineteenth century. Our first estimate of the labour force growth rate is for the decade 1851-61, by which time the long growth cycle would have been well into its declining phase.

4. The Determinants of Change in the Labour Force: A General Framework

The change in the size of the labour force between any two dates is determined by a variety of factors. Which ones are important depends, in part, on the length of the period. Thus, if one considers a period of, say, ten years, births may be neglected since no children born during the period will have achieved working age by the end of it.³ On the other hand, for a period of twenty or thirty years this would not be so and the birth rate might be an important factor.

The natural ageing process — the movement of people from one age group to the next — is of obvious importance. At one end of the age stream, children mature and enter the working-age population; at the other end, older persons retire. Other things equal, if the rate of entry of young people and the rate of retirement of older people are not the same, the labour force will show a net increase or decrease. But even if these rates are in balance in a particular period, the ageing process may still have an effect by altering the age distribution within the working-age population. If the distribution shifts towards age groups in which the propensity to belong to the labour force is lower and away from those in which it is higher, the labour force will tend to decrease even though the total size of the working-age population may not have changed. If the shift is in the opposite direction, the labour force will tend to increase.

Mortality takes its toll at all ages. Deaths of children reduce the number of potential labour force entrants in the future and deaths among adults may represent more immediate losses. To the extent that mortality rates are declining, such losses will be reduced.

The labour force participation rate — the proportion of the population belonging to the labour force — may change for the working-age population as a whole or for a particular group within the working-age population as a

³ This refers to the *direct* effects of births. There may, of course, be indirect effects which are felt immediately. In particular, a change in the birth rate may affect the propensity of women in the child-bearing and child-raising age groups to take jobs outside the home.

result of social, economic, or technological influences. Rising female participation rates provide one example, reflecting long-run changes in attitudes towards the employment of women, changes in the nature of industry and the conditions of work, the development of labour-saving devices for the home, and so on. Another example is provided by the falling rates for young people, reflecting the tendency to stay in school longer which, in turn, reflects more basic factors such as the increase in average levels of income. Participation rates may vary over short periods, too. In particular, seasonal fluctuations are common in Canada and in many other countries with highly variable climates.

It would be a mistake to think of changes in the labour force as reflecting movements of people in only one direction, either in or out, as the case may be. Similarly, it would be a mistake to think that an absence of change implies an absence of movement, or even that it implies only a small amount of offsetting movement. Quite the contrary may be true: there may be substantial movements of people in both directions and the net change, if there is any net change, may be the difference between a large gross inflow and a large gross outflow. This applies to the labour force for particular groups, such as age-sex groups, as well as to the labour force in total.

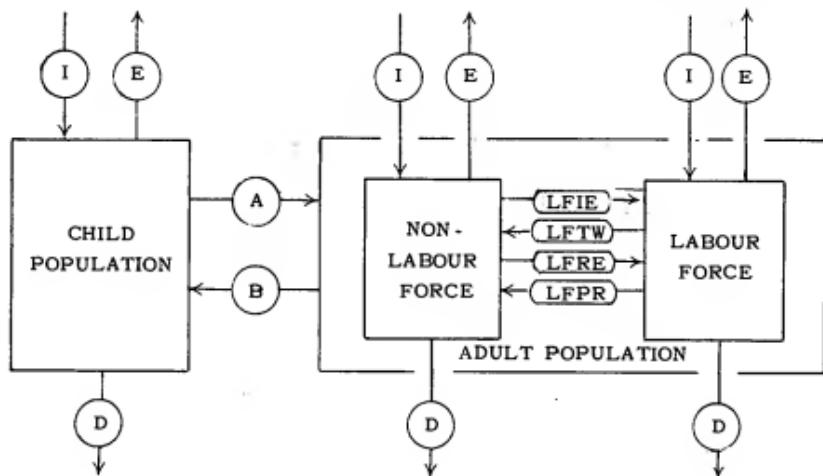
The system of movements into and out of the labour force is complex. The entry of young people and the exit through retirement of older people have been mentioned but there is constant movement in and out at all ages. People may leave for various reasons — illness, childbearing and child-raising in the case of women, inability to find employment, resumption of interrupted educations, voluntary choice of leisure, etc. — and then re-enter at a later time. Even in the case of "retirement" there may be subsequent re-entry; the man who relinquishes his job at the age of sixty-five may find himself back in the labour force a few months later, either part-time or full-time, in order to conquer boredom or supplement a pension. Net changes in the labour force and in participation rates will occur depending on the extent to which these inflows and outflows balance each other.

The foregoing discussion covers all of the factors with which one would have to be concerned in dealing with a closed population. But the population of Canada is a conspicuously open one. It is constantly being added to by immigration and depleted by emigration. Immigrants may move into the labour force or non-labour force segments of the population. Similarly, emigrants may come from either segment. In the case of migrant children, the impact on the labour force is delayed, of course.

The various inflows and outflows which determine changes in the labour force are represented schematically below, in somewhat simplified form. The adult population block on the right is augmented by inflows of maturing children and, in turn, provides a feed-back to the child population

via births. Death drains off the population of children and adults, including, in the latter case, both labour force and non-labour force. Similarly, immigration adds to and emigration depletes the population at all stages. Finally, there are flows between the labour force and non-labour force segments of the adult population, including initial labour force entries, final retirements, and temporary movements in both directions.

Schematic Representation of Population and Labour Force Movements



I - immigration

E - emigration

B - births

D - deaths

A - ageing

LFIE - initial entries into labour force

LFTW - temporary withdrawals from labour force

LFRE - re-entries into labour force

LFPR - permanent retirements from labour force

With this general framework in mind, we turn our attention next to an examination of the Canadian historical pattern of each of the major factors which influence the rates of population and labour force growth. Following this, estimates are presented of the quantitative contributions of these factors over the period since the middle of the nineteenth century.

5. The Birth Rate

Comprehensive regular reporting of births in Canada dates only from 1921.⁴ However, estimates prepared by Keyfitz for intercensal decades before that make it possible to extend the series back to 1851-61.⁵ These estimates are undoubtedly subject to a substantial amount of error. Even the official record of births since 1921 is believed to have suffered from under-registration which may have approached 10 per cent in the beginning and which probably persisted, although in diminishing degree, until the introduction of family allowances in the 1940's provided the pecuniary incentive for more faithful observance of reporting regulations. Following Ryder,⁶ the birth registration series has been adjusted for present purposes but the adjustments are necessarily crude. However, such deficiencies as remain in the available data are unlikely to mask the dominant trends and the joining of the Keyfitz series and the adjusted official registration series provides what is probably a reasonably reliable picture of major changes in the birth rate since the middle of the last century.

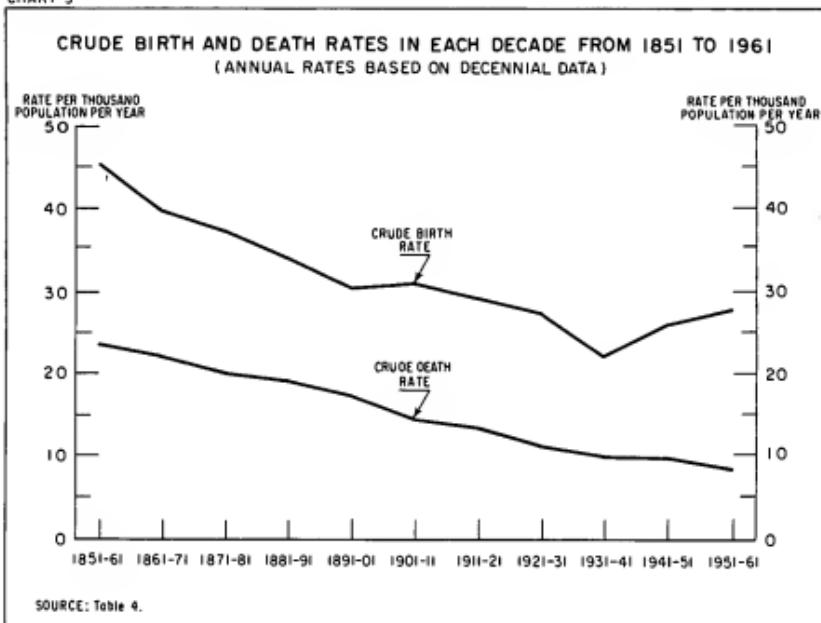
The long-run decline in the birth rate stands out clearly. Table 4 and Chart 3 show the rate falling in every decade between 1851 and 1901. There was a minor interruption in the early years of this century but the downward trend was resumed and continued until the late 1930's. After 1937 the rate started to rise. It moved up sharply after World War II and remained at a relatively high level throughout the 1950's. More recently the situation has changed markedly. A slight drop towards the end of the 1950's has given way to unmistakable evidence of rapid decline in the first few years of the present decade. By 1966 the rate had fallen to 19.4 per thousand, the lowest Canadian rate on record up to that time.

⁴ As of January 1, 1920, eight of the nine provinces of Canada began to participate in a cooperative system of vital statistics reporting and a summary statement for these eight provinces was issued for the year 1920. However, the first detailed report published by the Dominion Bureau of Statistics was for the year 1921. Quebec entered the national registration area at the beginning of the year 1926. A description of the history of the national registration system is given in DBS, *Canada Year Book, 1948-49*, King's Printer, Ottawa, 1949.

⁵ Nathan Keyfitz, "The Growth of Canadian Population," *Population Studies*, Vol. IV, No. 1, June, 1950.

⁶ See Norman B. Ryder, "Components of Canadian Population Growth," *Population Index*, Vol. 20, No. 2, April, 1954. Ryder assumes that birth registration was 91 per cent complete in 1921 and that the proportion advanced at a rate of three tenths of a percentage point per annum until 1946, in which year registration is assumed to have been complete. The evidence on which he bases his assumptions was provided by studies made in connection with the 1931 and 1941 Censuses, as described in Enid Charles, *The Changing Size of the Family in Canada, 1941 Census Monograph No. 1*, King's Printer, Ottawa, 1948, and W.R. Tracey, "Fertility of the Population of Canada," *1931 Census of Canada*, Vol. XII.

CHART 3



The direct effect on the labour force of a change in the birth rate will not be felt until the children born have come of working age and finished school. Today the average age at which people enter the labour force is between seventeen and eighteen. Fifty or a hundred years ago it was much lower so that the average lag between births and their impact on the labour force was less by several years. On the other hand, much higher rates of mortality among children, especially newborn infants, tended to lessen the impact of births by reducing the number who survived to adulthood.

Table 5 compares, for selected dates, the population 15-19 years of age — the age group in which most people enter the labour force today — with the number of births 15-19 years earlier. The trough in the birth series in the late 1930's is reflected in the 15-19 age group in the early 1950's: whereas the population as a whole was 11 per cent higher in 1951 than in 1946 (after allowing for the addition of Newfoundland), the 15-19 age group was almost 5 per cent lower. Similarly, the "baby boom" of the postwar period is reflected in the rapid increase in the number of persons in this age group in the late 1950's and early 1960's — 23 per cent from 1956 to 1961 and 28 per cent from 1961 to 1966.

The conformity of the two series is only approximate, of course. Comparisons are distorted by the effects of mortality, the arrival or departure of migrants, inaccuracies in the adjustments for under-registration of births

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in the earlier periods, and errors in census enumerations of the population. There is no doubt about the correspondence in broad outline, though, and the implications for the labour force are clear. The reversal of the long-run downward trend in the birth rate and the abrupt shift to higher levels during and after World War II have had an important effect on the number of labour force entrants in the late 1950's and early 1960's. The sharp decline in the birth rate in the early 1960's promises similarly important consequences for the labour force in the early 1980's.

6. The Death Rate

Deaths, like births, have been reported on a uniform and comprehensive basis only since 1921.⁷ The work of Keyfitz has furnished intercensal series of deaths and natural increase going back to 1851-61 by the application of assumed mortality rates to census population data by age and sex.⁸ Using different mortality assumptions, McDougall has calculated an historical series of natural increase which differs somewhat from the Keyfitz series.⁹ Drawing on the work of Keyfitz and McDougall and various other material, Camu, Weeks, and Sametz have prepared a third set of estimates¹⁰ and essentially it is these that are used in the present study for the pre-1921 period. All of the various estimates are discussed in Appendix A.

As noted above, the official birth statistics for the period commencing with 1921 have been adjusted for under-enumeration in the present study, following Ryder. No similar adjustment was attempted for deaths and the official series has been used here without significant modification. The rate of natural increase — being the difference between birth and death rates — is, of course, increased by the amount of the allowance for under-registration of births.

The crude rates of death and natural increase employed in this study are displayed in Table 4 and Chart 3. (The rate of natural increase is not charted explicitly but can be inferred from the gap between the birth rate and death rate lines.) Subject only to minor variations in the rate of decline, the death rate has fallen steadily during the past century or more for which the series is available. From an estimated 23.5 deaths per thousand per year in 1851-61, the rate had fallen to 14.4 by the first decade of the twentieth century and to about 8 by the late 1950's. By 1966 the death rate had declined to 7.5 per thousand — less than a third of what it had been at the middle of the nineteenth century.

⁷ See relevant footnote of Section 5.

⁸ *Op. cit.*

⁹ Duncan M. McDougall, "Immigration into Canada, 1851-1920," *Canadian Journal of Economics and Political Science*, Vol. 27, No. 2, May, 1961. See also the "Comment" by Keyfitz in the same issue.

¹⁰ Pierre Camu, E.P. Weeks, and Z.W. Sametz, *Economic Geography of Canada* Macmillan of Canada, Toronto, 1964.

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The average life expectancy of a male child at birth was 60.0 years in 1931; in 1961 it was 68.4.¹¹ In large measure this increase was the result of a dramatic reduction of mortality among children, especially infants. At older ages the increases were considerably less — 2.5 years at age twenty and 1.0 at age forty. Even in comparison with 1871 the gains for adult males do not appear to have been spectacular.¹² The increases were greater for females than for males, no doubt reflecting reductions of mortality in child-bearing. However, from the point of view of the more immediate effects on the labour force, it is male life expectancy that is more important.

On the basis of the foregoing it may be said that in the context of manpower growth — that is to say, sheer increase in the numbers of workers — the most important effect of the long-run decline in mortality has probably been to increase the proportion of newborn children who survive to become "economically active." It has been estimated that the average number of years of working life in prospect for a newborn male infant rose from 39.6 in 1931 to 42.1 in 1961.¹³ This increase is attributable entirely to improvements in life expectancy — and especially to an increase in the probability of surviving the first year of life — for the actual average working life of males reaching adulthood has fallen continuously as a consequence of prolongation of education on the one hand and earlier retirement on the other. Although a fifteen-year-old could have anticipated some 2.8 more years of life in 1961 than in 1931, his probable working life would have been 1.2 years less.

¹¹ Average life expectancy figures for census years from 1931 to 1961 are presented in summary form in DBS, *Vital Statistics, 1965*, Queen's Printer, Ottawa, 1967.

¹² See DBS, *Canadian Vital Statistics Trends, 1921-1954*, Reference Paper No. 70, Queen's Printer, Ottawa, 1956 for life expectancy figures for 1871, 1881, and 1921. The user is warned in a footnote that the figures "are to be interpreted with caution because of difficulties in the reporting of deaths in these early years and other factors."

¹³ See Frank T. Denton and Sylvia Ostry, *Working Life Tables for Canadian Males*, One of a Series of Labour Force Studies in the 1961 Census Monograph Programme, Queen's Printer, Ottawa, 1969.

7. *Immigration and Emigration*

The official annual statistics of immigration go back as far as 1852, although the reliability of the series in some of the earlier periods is open to question.¹⁴ There are no direct measurements of emigration even today¹⁵ but attempts have been made to derive historical estimates residually by calculating the difference between the intercensal population increase for each decade and the estimated sum of natural increase and immigration.¹⁶ Unfortunately the residual estimates have proved to be quite sensitive to the assumptions about other components, a fact that is evidenced especially by the differences between the Keyfitz series and the McDougall series for decades before 1921. Even in recent decades there is some uncertainty about the volume of emigration and net immigration (immigration minus emigration) and for earlier decades the degree of uncertainty is considerable.

The various estimates of immigration and emigration that are available are presented in Table 37 and discussed, together with the associated estimates of births, deaths, and natural increase, in Appendix A. The official counts of immigrants have been used in this study for the period since 1921 and estimates of emigration have been derived residually. For the period before 1921 this approach was rejected in favour of the Camu-Weeks-Sametz series which incorporate a number of assumptions and modifications of the estimates made by Keyfitz and McDougall. However, the choice is largely an arbitrary one. It is quite clear that the available information about movements of people into and out of Canada in the nineteenth century and the first two decades of the twentieth leaves much to be desired. This is true of total population movements but truer still of labour force movements, for estimation of the latter depends not only on the total numbers of migrants in both

¹⁴ See the notes by Buckley in Section A of M.C. Urquhart and K.A.H. Buckley (ed.), *Historical Statistics of Canada*, The Macmillan Company of Canada Limited, Toronto, 1965. See also McDougall, *op. cit.*; the "Comment" by Keyfitz accompanying the McDougall article; Camu, Sametz, and Weeks, *op. cit.*; and James Pickett, "An Evaluation of Estimates of Immigration into Canada in the Late Nineteenth Century," *Canadian Journal of Economics and Political Science*, Vol. XXXI, No. 4, November, 1965.

¹⁵ For postwar periods there are, however, estimates of emigration based on the immigration statistics of other countries, in particular the United States and the United Kingdom. These estimates are made in the Census Division of DBS for purposes of compiling intercensal estimates of population.

¹⁶ Studies by Keyfitz, McDougall, and Camu, Sametz, and Weeks, previously cited. The Keyfitz estimates for 1851-1921 of emigration and other components of population change have been adopted, with only minor modifications, by DBS and published in the previously mentioned *Canadian Vital Statistics Trends, 1921-1954*, and in *Canada Year Book, 1957-58*, Queen's Printer, Ottawa, 1958.

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directions but also on the characteristics of the migrants, in particular their age and sex distributions, about which very little is known. The problems of estimating labour force flows are discussed in Appendix B.

A number of prominent historical features stand out in spite of the weaknesses of the statistics. Taking the 1851-1961 period as a whole, it is apparent that while there have been heavy inflows, these have been counterbalanced by heavy outflows; in every decade immigration has been offset in large measure by emigration, especially to the United States, so that net immigration has been much less than gross immigration. In five of the eleven decades it actually appears to have been negative, implying a net loss on the international exchange of population. Four of these five decades are the ones between 1861 and 1901, a period notable for relatively low rates of population growth; the fifth is the decade 1931-41 in which migratory movements in both directions were substantially reduced.

In spite of the sizable movements across Canadian boundaries, international migration has contributed much less than natural increase to the growth of the population and the labour force since the middle of the nineteenth century. However, the volatility of migration has been responsible in considerable degree for *fluctuations* in the rates of increase. The rates of increase have been generally high, by international standards, but far from uniform, and the lack of uniformity is attributable largely to lack of uniformity in the rates of immigration and emigration.

CHART 4

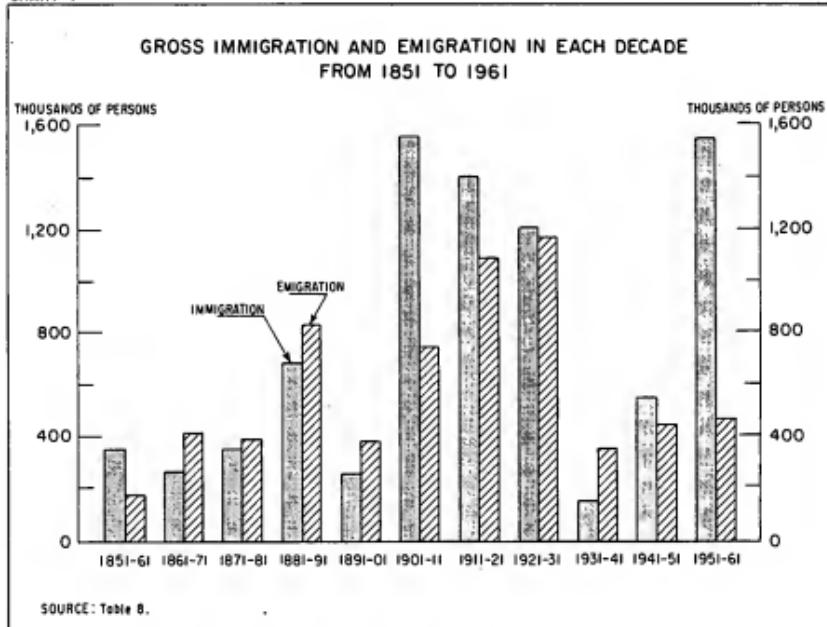
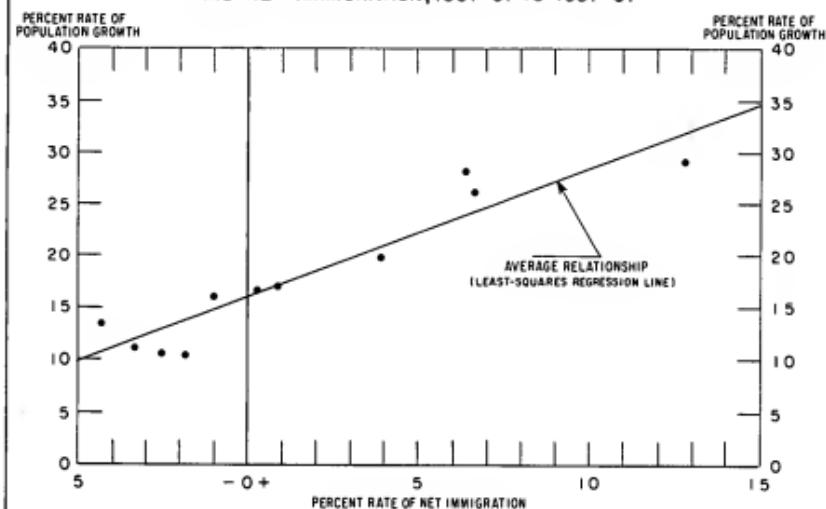
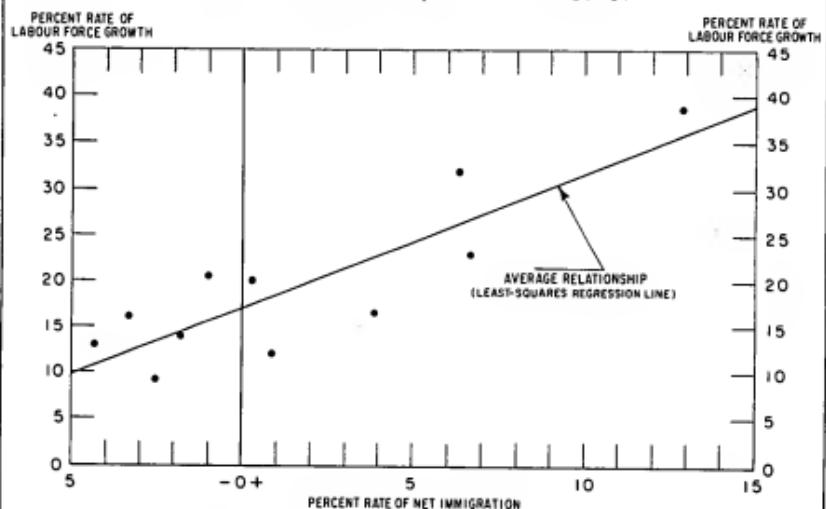


CHART 5

RELATIONSHIP BETWEEN DECENTRAL POPULATION GROWTH
AND NET IMMIGRATION, 1851-61 TO 1951-61

SOURCE: Table 9.

CHART 6

RELATIONSHIP BETWEEN DECENTRAL LABOUR FORCE GROWTH
AND NET IMMIGRATION, 1851-61 TO 1951-61

SOURCES: Net immigration rate from Table 9; labour force growth rate from Table II.

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The extent of the fluctuations in migratory movements is evident from Chart 4 and the relationships between these fluctuations and the variations of population and labour force growth rates are apparent from Charts 5 and 6. In the latter two charts, the percentage growth rates are plotted against the percentage net immigration rate, i.e., the net number of immigrants as a percentage of the population. Regression lines representing the "average relationships" over the eleven decades are also plotted. It will be seen that in both cases the relationship is close, though somewhat more so in the case of the population, as one might expect.¹⁷ It will be seen also that even with zero net immigration the rates of growth would have been substantial — about 16 per cent for the population and 17 per cent for the labour force, according to the regression lines.¹⁸ This, of course, is a reflection of the importance of natural increase throughout the period.

The foregoing discussion is in terms of decade-to-decade changes. It is worth noting that migration is subject to considerable variation from year to year, a good deal of which may be "smoothed out" in a decennial series. The extent of annual fluctuations in the official gross immigration series can be seen from Table 6 and there is no reason to doubt that emigration and net immigration have also fluctuated markedly. Natural increase rates, on the other hand, tend to change relatively gradually. It is safe to say, then, that however volatile an element migration has been in decennial population and labour force growth it has been a much more volatile element in the context of shorter-run changes.

Perhaps the most notable period in the history of Canadian immigration is the period before World War I, the period in which Western Canada was opened for settlement. The official record indicates a total inflow of about 1.8 million people between 1901 and 1911. Keyfitz has used the official figures. McDougall has attempted to eliminate immigrants who landed in Canada but were destined for the United States and has calculated a gross immigration total of 1.1 million. Camu, Weeks, and Sametz have offered a "compromise estimate" which is between 1.5 and 1.6 million. In all three cases, though, the estimates of net immigration lie between 700,000 and 800,000.

¹⁷ Writing P for population growth rate (in percentage form), L for labour force growth rate, and M for net immigration rate, the regression equations are $P = 15.9 + 1.25 M$ and $L = 17.1 + 1.46 M$. The coefficients of determination (corrected for degrees of freedom) are .87 and .72, respectively, suggesting that fluctuations in net immigration accounted for a little less than nine tenths of the variation in population growth rates and a little more than seven tenths of the variation in labour force growth rates.

¹⁸ If M is zero, the values of P and L derived from the regression equations are 15.9 and 17.1, respectively. It may also be noted at this point that the coefficient of M is greater in the equation for L than in the equation for P (1.46 compared with 1.25). This is consistent with the tendency for immigration to have a greater impact on the labour force than on the population as a whole by virtue of the heavy concentration of immigrants in the working age groups.

The use of the intercensal decade is to some extent misleading in this instance for the years of heaviest immigration were those immediately preceding the outbreak of war in 1914. In the single year 1913, the official statistics show some 400,000 immigrant arrivals — by far the largest annual influx on record — and for the three-year period 1911-13 the total is well in excess of a million. Considering the full period from 1901 to 1914, inclusive, the official count is 2.9 million. Even allowing for overstatement, this is a very large number indeed in relation to a population of less than 5.4 million at the beginning of the period. As Ryder has observed, "A future recurrence which would even begin to rival this in relative magnitude seems highly improbable."¹⁹

The 1920's constituted another period in which movements both into and out of the country were at a high level, although the resulting net addition to the Canadian population may have been small. In contrast, the depressed 1930's saw a drastic curtailment of international migration in both directions. Not until after World War II did immigration again exceed a trickle and not until the 1950's did it return to what would be considered in the Canadian context as consistently high levels.

The 1950's represent one of the most interesting periods in Canadian immigration history. In the intercensal period 1951-61, gross immigration amounted to some 1.5 million, net immigration to about 1.1 million. Relative to the size of the population — 14 million at the beginning of the decade — these figures are much less spectacular than those of the pre-World War I period. Nevertheless, the impact on the Canadian population and the Canadian economy was great. In particular, immigration provided an important offset in the early and middle years of the decade to the shortage of young people in the labour force entrance age group resulting from the low birth rates of fifteen or twenty years earlier. The rapid rate of economic expansion of the 1950's was thus largely attributable to a high rate of immigration.

¹⁹ *Op. cit.*, p. 73.

8. Participation Rates

The most notable aspects of the changing pattern of labour force participation, at least in this century, are the marked declines in the rates for males as a consequence of later entry into the labour force and earlier retirement, the equally prominent increases in the rates for females, and the stability of the overall rate in the face of these developments. From the point of view of the growth of the total labour force (though not of its composition), changes in participation have had little effect. For the period from 1921 to 1961, the decennial estimates of the labour force as a proportion of the non-institutional population fourteen years of age and over lie within narrow limits: 54.5 per cent at the lowest point, 56.2 at the highest. The decade 1901-11 exhibits greater change; as a result of the preponderance of working-age males in the massive immigration of that period, the rate rose from 53.0 at the beginning to 57.4 at the end. However, taking the first six decades of this century as a whole, and especially the most recent four decades, the relative constancy of the overall participation rate is quite remarkable.

Estimates of participation rates by age and sex are set out in Table 7 in some detail for the period 1901-61.

9. A Population Balance Sheet

The basic components of population — births, deaths, immigration, and emigration — are combined systematically in the form of a "balance sheet" covering each decade in the period 1851-1961. The components are expressed as numbers of persons in Table 8 and as percentage figures in Table 9. The latter figures are obtained by expressing the numerical components as percentages of the average population during the decade (that is, the average of the population at the beginning and the end).²⁰ As indicated in previous sections, and described in more detail in Appendix A, the approach taken in compiling the tables is somewhat eclectic. In essence, births are taken from Keyfitz and all other components from Camu, Weeks, and Sametz for the period before 1921. For the period 1921-51, the figures are from Ryder (with minor adjustments) and incorporate his corrections for incompleteness of birth registration. (Ryder used the official death and immigration statistics but since he calculated emigration residually, the correction of the birth series is reflected in this component as well.) The 1951-61 figures are those calculated in the Census Division of the Dominion Bureau of Statistics using the official birth, death, and immigration series. In addition to the residual estimate of emigration for 1951-61, the Census Division's estimate based on the immigration statistics of the United States, the United Kingdom, and other countries is also shown in Tables 8 and 9. The difference between these two emigration figures, and between the estimates of net immigration based on them, attests to the uncertainty about international population movements even in recent times and, by implication, underscores the difficulties of estimation for periods of fifty or a hundred years ago.

It will be observed that natural increase was by far the largest contributor to population growth in every decade, even during the immigration boom at the beginning of this century. Considering the full period of one hundred and ten years, the population increased by some 15.4 million (after allowance for the addition of Newfoundland). Natural increase was responsible for 13.6 million or 88 per cent of this increase. If we consider only the six decades of the twentieth century, the proportion is about 83 per cent.

²⁰ Total population change is equal to births minus deaths plus immigrants minus emigrants. Dividing both the total change and each of its components by the same number (i.e., the average population) preserves the equation.

Natural increase during a decade is not entirely independent of migration. For one thing, mere changes in the size of the population resulting from migration would tend to produce changes in the numbers of births and deaths even if the age distribution of migrants were identical to that of the existing population. By calculating percentages on the basis of the average population rather than the population at the start of the period — which would be a more conventional type of calculation — it is possible to get around this difficulty in a rough way. However, the age distribution of migrants is *not* identical to that of the existing population. Both immigrants and emigrants tend to be concentrated in the younger adult age groups. Since these are also the groups in which child-bearing is concentrated, and ones in which mortality is relatively low, the overall birth and death rates may be affected. Natural increase, expressed as a ratio to the total population, may rise in periods of high net immigration and fall when net immigration is lower. Such a relationship is evident to some extent in Table 9. Nevertheless, the decade-to-decade variation of the rate of natural increase, from all causes taken together, is much smaller than the variation of both the net immigration rate and the overall rate of growth of the population. Thus, as we have already seen, although net immigration has been responsible for only a small fraction of the total population increase since the middle of the last century, it has been by far the most important source of *fluctuations* in the rate of population increase.

10. A Labour Force Balance Sheet

The components of labour force growth for each decade of the period 1851-1961 have been estimated on the basis of the data underlying Table 8, other related population data, and information or assumptions about labour force participation rates. The estimates are presented in Tables 10 and 11, again in both ordinary numerical form and percentage form (and again using decade averages rather than the labour force at the beginning of the decade in calculating the percentages). Details of the calculations are explained in Appendix B. The estimates for decades before 1921 should be regarded as much less accurate than those for the more recent decades.

As in the case of the total population, it will be seen that natural increase – or what is here referred to, in the labour force context, as “domestic supply” – has been the dominant source of growth since the mid-nineteenth century. The estimated proportionate contribution over the whole of the 1851-1961 period is only slightly lower – 85 per cent, compared with 88 per cent for the population as a whole. For the period since 1901 the proportion is estimated at about 75 per cent for the labour force. Only in one decade, the first one of this century, did net immigration contribute more than domestic supply to the expansion of the nation’s manpower resources. Once again, though, the historical *variability* of the overall rate of growth of the labour force is seen to depend very largely on the variability of the migration component.

11. Some Aspects of Changing Composition Related to Growth

The growth of the population and the labour force has been accompanied by some basic changes in structure and distribution. Some of these changes will now be considered. Specifically, this section is concerned with changes in sex and age composition, differences in regional and provincial growth rates, the phenomenon of urbanization, and the long-run shift from farm to nonfarm forms of economic activity.

Changes in the Ratio of Males to Females — As can be seen in Table 12, there has been an excess of males over females in the population in every period since the mid-nineteenth century, and in all probability this was a characteristic of the population in earlier periods as well. Although the ratio exhibits no clear and continuous long-run trend, it has not remained constant. After little change in the 1850's, the ratio for the population as a whole fell in the 1860's and 1870's, then rose somewhat in the 1880's and again in the 1890's. In the first decade of the present century it increased rather abruptly, reflecting the high male content of immigration in that period, but by 1921 it had declined again to something approaching the level before the immigration boom. Rising slightly in the 1920's it then fell in each of the succeeding three decades. By 1961 it was just over 102 males per 100 females, the lowest ratio on record up to that time.

Variations in the sex ratio have been more pronounced for the working-age population than for the population as a whole. Taking the age group 15-64 as a rough approximation to the working-age population, the ratio has varied from less than 101 to almost 120. Between 1901 and 1911, the ratio for the population as a whole increased by just under 8 but the ratio for the 15-64 group increased by more than 13, a further reflection of the heavy impact of the immigration boom of that period on the "economically active" component of the population.

The foregoing relates to the population. As for the labour force itself, the sex composition has changed much more markedly because of the long-run downward movement of male participation rates and the upward movement of female rates. In 1901, men represented about 85 per cent of the total labour force, women about 15. By 1961, the male proportion had dropped to 74 per cent and the female proportion had risen to 26. (See Table 18.)

Changes in Age Composition — All of the major demographic trends and events discussed in earlier sections are reflected in some degree in the changing age structure of the population, as depicted in Tables 13 to 16. The long-run decline in the birth rate down to the late 1930's is reflected in the generally decreasing ratio of population under five years of age to the total population in the censuses from 1851 to 1941; the increase in the birth rate during and after World War II is reflected in a corresponding increase in this ratio by the time of the 1951 Census. Similarly, the effect of the persistent decline in mortality rates can be seen in the generally increasing proportion of older people in the population.

As a consequence of the prolonged decline in the birth rate on the one hand, and the reduction of mortality on the other, the median age of the Canadian population rose consistently and substantially in the period before 1951.²¹ In 1881 it was just over twenty years; by 1951 it was almost twenty-eight years. During the 1950's the continuation of high birth rates caused the age distribution to become increasingly "bottom heavy," with the result that by 1961 the median age had fallen to 26.5.

The effect of immigration on the age structure of the population is evidenced most clearly by the shift that occurred between 1901 and 1911, as shown in Table 14. All of the age groups from twenty to fifty-four increased in relation to the total population and all but one of the other groups declined. The exception is the age group under five which increased its share very slightly, probably as a consequence of the increase in births resulting from the large addition to the population in the child-bearing ages.

Immigration also added disproportionately to the young and middle-aged adult population in the 1950's but this is not as readily discernible in the tables because of the simultaneous impact that changes in the birth rate were having on the relative age distribution in that period. By the end of the 1950's it was some two decades since the birth rate had started to rise and its effects were reflected in increases in the relative shares of all age groups under twenty and associated declines in most of the groups over twenty. Since the percentage shares must add to one hundred, increases in some must be offset by decreases in others. Also, the much smaller birth cohorts of the 1930's and earlier were moving through the age groups over twenty and tending to restrict their rates of increase. Nevertheless, the effects of immigration were substantial. The large inflow of persons concentrated in the age range from twenty to forty or forty-five acted to offset the consequences of the low birth rates of earlier decades. Had it not been so, the rate of labour force growth in the 1950's would have been substantially lower and the age structure of the population and labour force would have been subject to an appreciably greater degree of distortion.

²¹ DBS, "Age and Sex Composition," 1961 Census of Canada, Vol. VII, Bulletin 7.1-1, Queen's Printer, Ottawa, 1964.

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The age distribution of men in the labour force has been affected also, of course, by the decline in participation rates at both ends of the male working life. As can be seen in Table 18, males under twenty accounted in 1921 for roughly 10 per cent of the total labour force (that is, the total of men and women combined); in 1961 they accounted for only about 5 per cent. The proportion of men sixty-five and over in the total has also fallen. The proportions accounted for by the older and younger female age groups have not changed markedly but there have been notable increases in the 25-34 and 35-64 age groups. In particular, the 35-64 age group roughly tripled its share, rising from about 4 per cent in 1921 to 12 per cent in 1961.

Geographic Patterns of Growth — There are no consistent labour force series for the provinces or regions of Canada before the post-World War II period.²² However, the broad geographic patterns of manpower growth can be inferred from changes in the total population. Population totals, percentage distributions, and rates of increase are shown in Tables 21 to 24 for each of the provinces and territories.

The slowing down of growth in the last four decades of the nineteenth century was reflected generally throughout the eastern and central areas of the country. In Ontario, the ten-year rate of population increase fell from almost 50 per cent in the 1850's to a mere 3 per cent in the 1890's. Elsewhere the drop was less precipitous but in every case considerable. The Maritimes showed an increase of less than 3 per cent in total between 1881 and 1901, and in Prince Edward Island there was an actual decline. In the West, though, the pace of settlement was accelerating. From 1871 to 1901 the population of Manitoba increased tenfold and in British Columbia there was a fivefold increase.

In the present century, the pre-World War I period stands out as one of sudden growth and redistribution. This was the period in which Western Canada was opened for settlement on a grand scale. Of the total increase of 1.8 million in the Canadian population between 1901 and 1911, more than three-fifths went into the Prairie and Pacific Coast regions. Saskatchewan and Alberta increased in population by over 400 per cent, British Columbia and Manitoba by 120 and 80 per cent, respectively.

British Columbia continued to experience rapid expansion in the following decades. In the Prairie Provinces, though, rapid growth gave way by the 1930's to comparatively low rates of increase and, in the case of Saskatchewan, to actual declines in the 1930's and 1940's. Throughout the period since 1900, the Maritime Provinces — Prince Edward Island, Nova Scotia, and New Brunswick — have consistently recorded only moderate gains if not actual declines. Ontario and Quebec have shown persistent and generally substantial rates of increase.

²² The census series available for earlier periods are on a "gainfully occupied" basis. For discussion, see Denton and Ostry, *Historical Estimates*.

The period since World War II has been characterized by substantial and sustained growth in British Columbia and the Central Provinces, and more moderate increases in the Maritimes and the Prairies, excluding Alberta. In the case of Alberta the rate of population increase has been rapid, indeed more rapid than in any of the other nine provinces.

Urbanization and the Shift to Nonfarm Activities — The urbanization of the Canadian population and the growing importance of the non-agricultural sector of the economy rank among the most basic changes of the last hundred years or more. Their relationship to the history of manpower growth is a close one.

The nation was predominantly rural at the time of Confederation; less than a fifth of the people lived in urban areas. The urban population grew much more rapidly than the rural population during the remainder of the nineteenth century. Nevertheless, at the beginning of this century the number of people living in urban areas still did not amount to much more than a third of the total. (See Table 25.)

Urbanization continued at a rapid rate in the decades that followed. Numerical equality between the rural and urban populations was achieved in the 1920's. By 1951 the urban population was 63 per cent of the total and by 1961 it was 70 per cent. If one considers the sixty years from 1901 to 1961, the urban population increased almost sixfold while the rural population failed even to double.

The composition of the rural population itself has changed, especially since World War II. As recently as 1941, three-fifths of the people in rural areas were living on farms, but by 1961 the proportion had fallen below two-fifths.²³ Thus the farm-nonfarm shift has been even more pronounced than the changes in rural-urban proportions alone would indicate.

The growth of the urban economy and the relative shift of population have had profound consequences for the labour force. The percentages recorded in Table 26 suggest that the labour force was divided almost equally between agricultural and non-agricultural pursuits in 1881. In 1901 agriculture still accounted for two-fifths. By 1941 it was a quarter, and today the proportion is well below a tenth.²⁴ Thus the Canadian labour force has evolved from being predominantly rural with a very large agricultural content in the second half of the nineteenth century to being predominantly urban and non-agricultural in the second half of the twentieth.

²³ Based on data available in DBS, "Rural and Urban Population," 1961 Census of Canada, Vol. VII, Bulletin 7.1-2.

²⁴ Agriculture can be defined as either an industry or an occupation. As an industry, it accounted for 7.6 per cent of the total civilian labour force in 1966, on the basis of annual average Labour Force Survey data; as an occupation, it accounted for 7.7 per cent.

The changes that have taken place in the last two decades are particularly noteworthy. The farm labour force had already declined markedly in relative terms, that is, as a proportion of the total labour force. Since World War II, though, it has declined very sharply in absolute terms: the actual number of people has been reduced drastically. In 1946 there were about 1.2 million people employed in the agricultural sector of the economy; by the mid-1960's there were fewer than 600,000. (See Table 34.) The movement of people off the farms constituted a major additional source of manpower during the postwar period. Together with immigration and rising female participation rates it provided an important offset to shortages of young labour force entrants during the economic expansion of the 1950's.

The quantitative importance of the farm-nonfarm shift and the implicit transfer of manpower can be calculated by comparing the actual changes in the labour force in each sector with the changes that would have taken place if the overall growth rates had prevailed in both sectors. Or, to say the same thing in a different way, one may compare actual changes with hypothetical changes based on the assumption that the farm-nonfarm ratio remained constant. Calculations of this sort (albeit rough ones) are presented in Table 27 for each of the eight decades from 1881-91 to 1951-61. The details of these calculations are described in Appendix C.

Table 27 indicates that whereas the total labour force and the labour force engaged in non-agricultural occupations increased in every decade, the labour force engaged in agricultural occupations increased in only four of the decades and decreased in the other four. Of the four decades in which decreases occurred, three are the most recent ones. Moreover, even when the agricultural labour force did grow, the percentage increases were much less than those of the total and non-agricultural labour force.

The quantitative significance of this for the growth of manpower in non-agricultural occupations is clear from the last two columns of the table which contain the estimated total non-agricultural percentage increases and the portions of these total increases that can be attributed to the farm-nonfarm shift. In every decade the shift made a contribution, in all but one of the eight decades this contribution exceeded a fifth, and in two decades, 1891-1901 and 1941-1951, it amounted to roughly half of the total increase.

12. The Period Since World War II: A Closer Look

The period since the end of World War II is of special interest because of its more direct relevance to present conditions and because of some quite remarkable changes that have taken place in the size and composition of the labour force. It is also the only period in Canadian history for which lack of statistical information is not a major impediment to the general analysis of manpower growth. The Labour Force Survey was initiated by the Dominion Bureau of Statistics in November 1945 and carried out four times a year thereafter until the end of 1952, at which time it became a regular monthly survey. A consistent labour force definition has been used since the beginning. Thus it is possible to discuss developments since the latter half of the 1940's in detail and with a degree of assurance not possible for earlier periods.

The Record of Labour Force Growth from 1946 to 1966 — The rate of increase of the civilian labour force has been far from uniform during the postwar period, as shown by Chart 7 and Table 28. Annual changes have varied from almost no increase at all to increases of nearly four per cent. The fluctuations in the rate-of-increase series are seen to be somewhat erratic, a fact attributable in part to the fluctuations of immigration and in part, no doubt, to the presence of sampling variability in the Labour Force Survey estimates from which the series is derived. However, certain broad patterns emerge clearly.

The rate of increase fell sharply in the first few postwar years and then rose again in the early 1950's as the effects of heavy immigration began to be felt. Commencing with 1951, there ensued a period of seven years in which only once did the annual number of immigrants drop below 150,000. In 1957 alone some 280,000 persons came to Canada and the labour force grew by 3.9 per cent.

The growth rate subsided to more moderate levels after 1957. The flow of immigrants was much reduced in the late 1950's and early 1960's; in 1961 and 1962 annual immigration amounted to just over 70,000 — enough to offset roughly the outflow of emigrants, perhaps, but certainly no more.²⁵ From 1961 to 1962 the labour force grew by less than 1½ per cent, the lowest

²⁵ The uncertain reliability of the emigration estimates makes it impossible to be more definite on this point.

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rate of increase in a decade. Had it not been for rising female participation rates and the large-scale influx of married women into the labour force, the rate of growth would have fallen even further after 1957. The children of the 1940's were moving up through the population in large numbers but their arrival in the labour market was being delayed by the rise in average school-leaving age.

CHART 7



The rate of growth climbed steeply again after 1962. The annual number of young people entering the labour force increased and the participation rates of women continued to rise. The volume of immigration expanded year by year, too: by 1965 it was almost 150,000 and in 1966 it was just short of 200,000.

A Labour Force Balance Sheet for the Postwar Period — The contributions of international migration and domestic supply can be seen in Tables 29 and 30 in which are presented balance-sheet estimates for five-year periods from 1946 to 1966. Table 29 contains estimates of the components of labour force growth in ordinary numerical form and Table 30 contains the same estimates expressed as components of the percentage growth rate (calculated, as before, on the basis of the average rather than the initial labour force). Details of the construction of the balance sheets are provided in Appendix B.

It will be observed that net immigration was the largest component of labour force growth in the period 1951-56. In the period 1956-61 it made a proportionately smaller contribution, and were it not for the peak immigration year of 1957 the contribution would have been smaller still. In 1961-66 immigration accounted for only an eighth of total labour force growth. Thus the major impact of immigration in the first two decades following the war came in the early and middle 1950's. Had it not been for the large injection of foreign-born manpower in that period the rate of labour force growth might have been less than half of what it was, and the expansion of the economy in general would have been severely restricted.

Changes in the Age Structure of the Population — The changes in the population by age are recorded in Table 31. The most striking feature of the table is the progression of the younger age groups. From 1946 to 1951 the 0-4 and 5-9 age groups increased by about 29 and 24 per cent, respectively, in consequence of the rise in the birth rate in the 1940's, whereas the 10-14 group increased by only 4 per cent and the 15-19 and 20-24 groups actually declined. The large increases in the youngest age groups can be seen marching through the population, so to speak. Moving diagonally down through the table, the increases appear in the 5-9 and 10-14 groups in 1951-56, the 10-14 and 15-19 groups in 1956-61 and the 15-19 and 20-24 groups in 1961-66. Allowing for the reduction of teen-age male participation rates, the wave of young people started to hit the labour market in the late 1950's and hit it with full force in the first half of the 1960's. Similarly, the low rates of increase or actual declines in the groups born in the 1930's or earlier can also be seen moving through the table. By 1961-66 they were reflected in the absence of any significant increase in the groups between 25 and 40 years of age. Of course immigration and emigration have distorted the picture somewhat but not sufficiently to cover up the general pattern of age change associated with the historical movements of the birth rate. Also notable in the table is the shift from large increases in the 0-4 age group in the periods before 1961 to a decline in this group in 1961-66, a shift that has important implications for the labour force in the 1980's, as mentioned in an earlier section.

Growth of the Female Labour Force — The rapid expansion of the female labour force in the 1950's and early 1960's is apparent from Table 32. In each of the five-year periods from 1951 to 1966 the percentage rate of labour force growth was much greater for women than for men; in 1956-61 and 1961-66 the numerical increases were actually larger, that is, more women than men were added to the labour force. From 22 per cent in 1951 the female component of the labour force had increased to 30 per cent by 1966.

The increasing participation of women, in particular married women, is thus seen to have been an important source of growth in the postwar period and especially so since the mid-1950's. Had the female component increased

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no more rapidly than the male component, in percentage terms, the total labour force would have grown by only 17 per cent instead of the 28 per cent by which it actually grew.²⁶

Regional Patterns of Growth — Taking the two decades between 1946 and 1966 as a whole, the Central Provinces and British Columbia have increased their shares of the Canadian labour force and the Atlantic and Prairie regions have experienced decreasing shares. However, the pattern of growth has varied to some extent from period to period. In the first five-year period, Ontario and Quebec were responsible for nearly all of the growth of the Canadian labour force and the Atlantic and Prairie regions actually exhibited declines. From 1951 to 1956 there were increases in every region, the largest (in percentage terms) occurring in British Columbia and the smallest in the Atlantic region. Rapid economic and population growth in Alberta in the 1956-61 period resulted in an expansion of the total Prairie labour force which exceeded (again in percentage terms) the rate of growth in all of the other regions. In the final period, 1961-66, the Prairie rate of growth subsided. British Columbia grew most rapidly in this latter period, with Quebec and Ontario following. (See Table 33.)

The Farm-Nonfarm Transfer of Manpower — The decline of the agricultural labour force has been particularly rapid since World War II. As can be seen in Table 34, the farm force decreased substantially in every five-year period, not only in relative terms (that is, as a proportion of the total) but in absolute numbers as well. In 1946 it accounted for almost a quarter of the total Canadian labour force. The proportion had dropped to less than a fifth by 1951 and to just over a seventh by 1956. By 1961 agriculture's share was little more than 10 per cent, and by 1966, just over 7 per cent.

The decline of agriculture as a source of employment released large quantities of manpower for work in other sectors of the economy. This is not to say merely, or even primarily, that people who had been working on farms for many years left to seek jobs elsewhere. That would have happened to some extent, of course, but of much greater importance was the fact that new entrants into the labour force went elsewhere than into farming. This was especially evident in the case of the children of farm families who left in large numbers to seek employment in the cities, towns, and villages once they had finished school. To take the most recent of the five-year periods as an example, some 121,000 males 15-19 years of age were reported as living

²⁶ For a detailed analysis of the female labour force, see Sylvia Ostry, *The Female Worker in Canada*, One of a Series of Labour Force Studies in the 1961 Census Monograph Programme, Queen's Printer, Ottawa, 1968.

on farms in the 1961 Census. By the time of the 1966 Census, when this group would have been 20-24 years of age, there were only 62,000 left, or roughly half.²⁷

Table 35 compares the actual increases in the agricultural and non-agricultural labour force in each period with what the increases would have been if the percentage growth rates had been the same in both sectors. As before, the implicit transfers of manpower are calculated as the differences between actual and hypothetical changes. (See Appendix C for details.)

The table shows that in 1946-51 the transfer exceeded by a wide margin the "natural" increase in the non-agricultural labour force, allowing the latter to grow much more rapidly than it could otherwise have done. In other periods the contribution of the transfer component was smaller, both relatively and absolutely, but in every case it was substantial. The transfer of manpower out of agriculture thus represents one of the major sources of growth in the available supply of labour in the postwar period, along with immigration, the increasing participation of married women, and (in the latter part of the period) the wartime and postwar "baby boom."

²⁷ There would have been some movement in the other direction too, though probably very little. To the extent that there was such movement the number of persons leaving the farms would have been greater and the decline indicated by the census figures would be a *net* decline.

13. *A General Summary*

The growth of Canadian manpower has been examined in this study in some detail and from several points of view. This final section attempts to draw together the main findings in general summary form.

The historical patterns of population and labour force growth have been roughly similar since the middle of the last century, and probably over a much longer period as well. Although the labour force tended to increase somewhat more rapidly than the population before the 1940's, in both cases growth has been persistent, generally rapid, but highly variable from decade to decade. In the present century, the most notable expansions are the ones before World War I and after World War II. In both of these immigration was a major factor.

Taking the period since the mid-nineteenth century as a whole, natural increase has been by far the most important source of manpower growth. Large numbers of persons have come to Canada in most decades but large numbers have left, too, so that *net* immigration has been much smaller than *gross* immigration. Indeed, in five of the eleven decades between 1851 and 1961 there appears to have been a net loss of population and labour force as a result of international migration.

Although their net contribution to long-term growth has been comparatively small, the movements of people across Canadian borders have been the dominant source of *fluctuations* in the growth rate from decade to decade. This is true of both population growth and labour force growth. Moreover, in the case of labour force growth the effect has been strengthened by the tendency for immigrants to be concentrated in the younger adult age groups and, especially in earlier periods, for male immigrants to outnumber female immigrants.

Changes in the birth rate have been important in the history of manpower growth, particularly in recent decades. Following a long-run decline, the birth rate started to rise at the end of the 1930's and continued to rise during and immediately after the war. The increases in the birth rate in this period, and the sustained high levels thereafter, have had a major impact on the labour force since the beginning of the 1960's as the children of the "baby boom" have entered the working-age population in large numbers. The very sharp decline in the birth rate in recent years promises consequences opposite in direction – but similar in importance – for the labour force of the 1980's.

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The death rate has displayed a consistent long-run downward trend. The most notable reductions of mortality have occurred among infants and, as a result, the proportion of children surviving to working age has increased steadily. This has acted as an offset to the shortening of the average male working life resulting from later school-leaving and earlier retirement.

Among the most significant developments of the twentieth century have been the persistent decline in the labour force participation rates for males in the youngest and oldest age groups — a concomitant of the shortening of working life just referred to — and the equally persistent rise in the rates for women, in particular married women. That these divergent trends should have so nearly offset each other, with the result that the overall ratio of labour force to adult population has changed relatively little over a long period of time, is a rather remarkable fact.

The major demographic trends and events of the last century or more are reflected in the changing age and sex composition of the population. Although every census has disclosed an excess of men over women in the population the ratio has varied from decade to decade. The swings in the ratio have been more pronounced for the working-age population than for the population as a whole, largely because of the high male content of immigration in earlier periods. At 102 males per 100 females, the ratio for the population as a whole was very near to parity in 1961, by historical standards.

The age structure of the population has also shown the effects of immigration. For the pre-World War I period these effects are reflected clearly in a proportionate shift towards the young and middle-aged adult groups. In the period after World War II the effects of immigration have also been significant but less apparent in the changing age structure because of offsetting variations from other sources.

Geographic patterns of growth have varied from period to period, but in every decade of this century all or most provinces have shared in the increase of the Canadian population. The exceptions are Prince Edward Island, which experienced declines in each of the first three decades of the century, Nova Scotia in the 1920's, and Saskatchewan in the 1930's and 1940's. Of course, in some provinces growth has been much more rapid than in others. The dominant feature of the earlier part of the century was the massive influx of population into Western Canada. In the more recent decades the most rapid growth has occurred in Ontario, Quebec, British Columbia, and Alberta.

The continuing urbanization of the population and the decline of agriculture as a source of employment are historical phenomena of long standing. The relative shift of manpower away from farming has been a source of growth of productive capacity for the non-farm sector of the economy in every decade, at least since the 1880's. In many decades it has been a major source.

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The period since World War II is notable for both increases in the size of the total labour force and changes in its composition. The annual rate of increase, while relatively high, on average, has varied considerably from year to year, ranging from less than 1 per cent in some years to almost 4 per cent in others. After 1946 the rate of increase fell rather sharply, and had there not been a large transfer of manpower out of agriculture in 1946-51, industrial growth in this period would have been severely constrained. In the next seven years immigration was a major source of manpower growth, supported by a continuing, though reduced, outflow from agriculture and an increasingly strong trend towards greater labour force participation on the part of married women. The supply of young labour force entrants was relatively meagre in this period, a reflection of the low birth rates of the 1930's.

Immigration declined abruptly after 1957 and the pace of labour force growth slackened. Married women continued to take employment outside the home in large numbers and there was some further outflow from the farm sector. But the wave of wartime and postwar children had not yet hit the labour market. The impact of the "baby boom" was delayed or spread out during the next few years by the rise in average school-leaving age, and it was not until after 1962 that the overall growth rate once again started to climb steadily. By 1966 it had risen to almost 4 per cent as the full force of the "baby boom" was felt and as the volume of immigration rose year by year.

This most recent period differs from earlier postwar periods in at least one notable respect. Previously some of the sources of manpower growth had been operative at one time, some at another. But by the mid-1960's all sources were operating simultaneously: young people were pouring into the labour market, immigration was again at a high level, female participation rates were continuing to rise, and the number of persons engaged in farm activities had fallen still further.

Tables 1 - 37

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GENERAL NOTES

- ¹ The symbol - is used to mean *nil* or *zero*.
- ² The symbol -- is used to mean *not available* or *not applicable*.
- ³ In tables in which the figures have been rounded, components may not add exactly to totals or subtotals.
- ⁴ Unless otherwise noted, the percentage increase during a period is calculated using the figure at the beginning of the period as the base. In some cases the average of the figures at the beginning and end is used as the base but these cases are noted explicitly.

Table 1 - Population and Changes in Population,
Non-aboriginal and Total, 1611-1961

Year	Non-aboriginal			Total		
	Population	Numerical increase	Per-centge increase	Population	Numerical increase	Per-centge increase
1611	17	--	--	--	--	--
1621	79	62	364.7	--	--	--
1631	101	22	27.8	--	--	--
1641	360	259	256.4	--	--	--
1651	680	320	88.9	--	--	--
1661	2,400	1,720	252.9	--	--	--
1671	7,100	4,700	195.8	--	--	--
1681	10,300	3,200	45.1	--	--	--
1691	12,040	1,740	16.9	--	--	--
1701	17,000	4,960	41.2	--	--	--
1711	22,000	5,000	29.4	--	--	--
1721	32,000	10,000	45.5	--	--	--
1731	45,000	13,000	40.6	--	--	--
1741	59,000	14,000	31.1	--	--	--
1751	71,000	12,000	20.3	--	--	--
1761	90,000	19,000	26.8	--	--	--
1771	105,000	15,000	16.7	--	--	--
1781	150,000	45,000	42.9	--	--	--
1791	233,000	83,000	55.3	--	--	--
1801	362,000	129,000	55.4	--	--	--
1811	517,000	155,000	42.8	--	--	--
1821	750,000	233,000	45.1	--	--	--
1831	1,085,000	335,000	44.7	--	--	--
1841	1,654,000	569,000	52.4	--	--	--
1851	2,300,000	646,000	39.1	2,436,297	--	--
1861	3,090,000	790,000	34.3	3,229,633	793,336	32.6
1871	3,580,524	490,524	15.9	3,689,257	459,624	14.2
1881	4,216,263	635,739	17.8	4,324,810	635,553	17.2
1891	4,715,000	498,737	11.8	4,833,239	508,429	11.8
1901	5,243,374	528,374	11.2	5,371,315	538,076	11.1
1911	7,101,151	1,857,777	35.4	7,206,643	1,835,328	34.2
1921	8,677,135	1,575,984	22.2	8,787,949	1,581,306	21.9
1931	10,253,875	1,576,740	18.2	10,376,786	1,588,837	18.1
1941	--	--	--	11,506,655	1,129,869	10.9
1951 ^a	--	--	--	13,648,013	2,141,358	18.6
1961 ^a	--	--	--	17,780,394	4,132,381	30.3
1951 ^b	--	--	--	14,009,429	--	--
1961 ^b	--	--	--	18,238,247	4,228,818	30.2

^a Excludes Newfoundland.

^b Includes Newfoundland.

SOURCES: Non-aboriginal population figures are taken from 1931 Census of Canada, Vol. I. Total population figures are from 1951 Census of Canada, Vol. X, and 1961 Census of Canada, Vol. VII.

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Table 2—The Labour Force and Changes in the Labour Force, 1851-1961

Year	Labour force	Numerical increase	Percentage increase
	'000	'000	
1851	762	--	--
1861	1,053	291	38.2
1871	1,201	148	14.1
1881	1,474	273	22.7
1891	1,732	258	17.5
1901	1,899	167	9.6
1911	2,809	910	47.9
1921	3,312	503	17.9
1931	4,048	736	22.2
1941	4,652	604	14.9
1951 ^a	5,250	598	12.9
1961 ^a	6,621	1,371	26.1
1951 ^b	5,355	--	--
1961 ^b	6,741	1,386	25.9

^a Excludes Newfoundland.

^b Includes Newfoundland.

SOURCE: Frank T. Denton and Sylvia Ostry, *Historical Estimates of the Canadian Labour Force*, one of a Series of Labour Force Studies in the 1961 Census Monograph Programme, DBS, Ottawa, 1967.

Table 3—Number of Persons in the Labour Force, Number of Persons Not in the Labour Force, and Dependency Ratios, 1851-1961

Year	Number of persons		Dependency ratio	
	In the labour force	Not in the labour force		
	A	B		
	'000	'000		
1851	762	1,674	2.20	
1861	1,053	2,177	2.07	
1871	1,201	2,488	2.07	
1881	1,474	2,851	1.93	
1891	1,732	3,101	1.79	
1901	1,899	3,472	1.83	
1911	2,809	4,398	1.57	
1921	3,312	5,476	1.65	
1931	4,048	6,329	1.56	
1941	4,652	6,855	1.47	
1951 ^a	5,250	8,398	1.60	
1961 ^a	6,621	11,159	1.69	
1951 ^b	5,355	8,654	1.62	
1961 ^b	6,741	11,497	1.71	

^a Excludes Newfoundland.

^b Includes Newfoundland.

SOURCES: Based on total population figures in Table 1 and labour force figures in Table 2.

Table 4 - Crude Birth, Death, and Natural Increase Rates, 1851-1966
(Annual Rates per Thousand Population)

Period	Crude birth rate	Crude death rate	Crude rate of natural increase	Period	Crude birth rate	Crude death rate	Crude rate of natural increase
Decennial Series							
1851-1861.....	45.2	23.5	21.7	1911-1921.....	29.2	13.3	15.9
1861-1871.....	39.6	22.0	17.6	1921-1931.....	27.3	11.0	16.2
1871-1881.....	36.9	20.0	16.9	1931-1941.....	22.0	9.8	12.2
1881-1891.....	33.6	19.2	14.4	1941-1951.....	25.8	9.7	16.1
1891-1901.....	30.3	17.2	13.1	1951-1961.....	27.7	8.2	19.5
1901-1911.....	30.7	14.4	16.3				
Annual Series							
1921.....	32.2	11.6	20.6	1944.....	24.2	9.7	14.5
1922.....	31.0	11.5	19.5	1945.....	24.4	9.4	15.0
1923.....	29.1	11.7	17.4	1946.....	26.9	9.4	17.5
1924.....	29.0	10.8	18.2	1947.....	28.6	9.4	19.2
1925.....	28.3	10.7	17.6	1948.....	27.0	9.3	17.7
1926.....	26.6	11.4	15.2	1949.....	27.3	9.3	18.0
1927.....	26.2	10.9	15.3	1950.....	27.1	9.1	18.0
1928.....	25.8	11.1	14.7	1951.....	27.2	9.0	18.2
1929.....	25.1	11.3	13.8	1952.....	27.9	8.7	19.2
1930.....	25.5	10.7	14.8	1953.....	28.1	8.6	19.5
1931.....	24.7	10.1	14.6	1954.....	28.5	8.2	20.3
1932.....	23.7	9.9	13.8	1955.....	28.2	8.2	20.0
1933.....	22.2	9.6	12.6	1956.....	28.0	8.2	19.8
1934.....	21.7	9.5	12.2	1957.....	28.2	8.2	20.0
1935.....	21.5	9.7	11.8	1958.....	27.5	7.9	19.6
1936.....	21.0	9.8	11.2	1959.....	27.4	8.0	19.4
1937.....	20.8	10.3	10.5	1960.....	26.8	7.8	19.0
1938.....	21.4	9.6	11.8	1961.....	26.1	7.7	18.4
1939.....	21.1	9.7	11.4	1962.....	25.3	7.7	17.6
1940.....	22.2	9.8	12.4	1963.....	24.6	7.8	16.8
1941.....	22.9	10.0	12.9	1964.....	23.5	7.6	15.9
1942.....	24.0	9.7	14.3	1965.....	21.3	7.6	13.7
1943.....	24.6	10.1	14.5	1966.....	19.4	7.5	11.9

SOURCES: Decennial figures are from Table 9. Annual figures for 1921-48 are from Norman B. Ryder, "Components of Canadian Population Growth," *Population Index*, Vol. 20, No. 2, April, 1954; Ryder's figures exclude Newfoundland and the Yukon and Northwest Territories but incorporate adjustments for under-registration of births in the years before 1946. Annual figures for 1949-66 are from DBS, *Vital Statistics, 1966—Preliminary Annual Report*.

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Table 5 - Comparison of the Number of Births and the Eventual Size of Population
15-19 Years of Age, Selected Periods

Period ^a of birth	Live births in that period (initial birth cohort)			Year ^b in which birth cohort aged 15-19	Population aged 15-19 in that year			Ratio to initial birth cohort
	Number	Change			Number	Change		
1926-31...	1,309		—	1946.....	1,110 ^c		—	84.8
1931-36...	1,233	— 76	— 5.8	1951.....	1,058	— 52	— 4.7	85.8
1936-41...	1,246	13	1.1	1956.....	1,162	104	9.8	93.3
1941-46...	1,498	252	20.2	1961.....	1,433	271	23.3	95.7
1946-51...	1,831	333	22.2	1966.....	1,838	405	28.3	100.4
1951-56...	2,110	279	15.2	1971.....	—	—	—	—
1956-61...	2,358	248	11.8	1976.....	—	—	—	—
1961-66...	2,249	— 109	— 4.6	1981.....	—	—	—	—

^a Period extends from June 1 of initial year to May 31 of final year.

^b Refers to June 1.

^c Includes Newfoundland.

SOURCES: Birth figures are based on data from various issues of the DBS annual report, *Vital Statistics*, but have been corrected for under-registration using the assumptions adopted in the Ryder article. (See Table 4 source note.) Population figures for 1951, 1956, 1961, and 1966 are from the Censuses of those years. The population figure for 1946 is based on a DBS intercensal estimate taken from *Population Estimates, 1921-1952*, with an adjustment for Newfoundland based on the 1945 Census of Newfoundland and an adjustment for the Yukon and Northwest Territories calculated by interpolation between 1941 and 1951 Census figures.

Table 6 - Official Statistics of Immigration, 1852-1966

Year	Number								
	'000		'000		'000		'000		'000
1852.....	29.3	1875.....	27.4	1898.....	31.9	1921.....	91.7	1944.....	12.8
1853.....	29.5	1876.....	25.6	1899.....	44.5	1922.....	64.2	1945.....	22.7
1854.....	37.3	1877.....	27.1	1900.....	41.7	1923.....	133.7	1946.....	71.7
1855.....	25.3	1878.....	29.8	1901.....	55.7	1924.....	124.2	1947.....	64.1
1856.....	22.5	1879.....	40.5	1902.....	89.1	1925.....	84.9	1948.....	125.4
1857.....	33.9	1880.....	38.5	1903.....	138.7	1926.....	136.0	1949.....	95.2
1858.....	12.3	1881.....	48.0	1904.....	131.3	1927.....	158.9	1950.....	73.9
1859.....	6.3	1882.....	112.5	1905.....	141.5	1928.....	166.8	1951.....	194.4
1860.....	6.3	1883.....	133.6	1906.....	211.7	1929.....	165.0	1952.....	164.5
1861.....	13.6	1884.....	103.8	1907.....	272.4	1930.....	104.8	1953.....	168.9
1862.....	18.3	1885.....	79.2	1908.....	143.3	1931.....	27.5	1954.....	154.2
1863.....	21.0	1886.....	69.2	1909.....	173.7	1932.....	20.6	1955.....	109.9
1864.....	24.8	1887.....	84.5	1910.....	286.8	1933.....	14.4	1956.....	164.9
1865.....	19.0	1888.....	88.8	1911.....	331.3	1934.....	12.5	1957.....	282.2
1866.....	11.4	1889.....	91.6	1912.....	375.8	1935.....	11.3	1958.....	124.9
1867.....	10.7	1890.....	75.1	1913.....	400.9	1936.....	11.6	1959.....	106.9
1868.....	12.8	1891.....	82.2	1914.....	150.5	1937.....	15.1	1960.....	104.1
1869.....	18.6	1892.....	31.0	1915.....	36.7	1938.....	17.2	1961.....	71.7
1870.....	24.7	1893.....	29.6	1916.....	55.9	1939.....	17.0	1962.....	74.6
1871.....	27.8	1894.....	20.8	1917.....	72.9	1940.....	11.3	1963.....	93.2
1872.....	36.6	1895.....	18.8	1918.....	41.8	1941.....	9.3	1964.....	112.6
1873.....	50.0	1896.....	16.8	1919.....	107.7	1942.....	7.6	1965.....	146.8
1874.....	39.4	1897.....	21.7	1920.....	138.8	1943.....	8.5	1966.....	194.7

SOURCES: Department of Citizenship and Immigration, *Immigration Statistics, 1965*; Department of Manpower and Immigration, *Quarterly Immigration Bulletin*, December 1966.

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Table 7 - Labour Force Participation Rates, by Age and Sex, 1901-61

Year	Both sexes, 14 years of age and over	All ages 14 and over	14-19	20-24	25-34	35-64	65 and over
			%	%	%	%	%
Men							
1901	53.0	87.8	--	--	--	--	--
1911	57.4	90.6	--	--	--	--	--
1921	56.2	89.8	68.4	94.3	98.0	96.9	59.6
1931	55.9	87.2	57.4	93.9	98.6	96.7	56.5
1941	55.2	85.6	54.6	92.6	98.7	96.1	47.9
1951 ^a	54.5	84.4	53.7	94.2	98.2	95.0	39.5
1961 ^a	55.3	81.1	40.6	94.4	98.4	95.3	30.6
1951 ^b	54.3	84.1	53.5	94.0	98.1	94.8	39.1
1961 ^b	55.1	80.8	40.5	94.2	98.0	95.0	30.4
Women							
1901	53.0	16.1	--	--	--	--	--
1911	57.4	18.6	--	--	--	--	--
1921	56.2	19.9	29.6	39.8	19.5	12.0	6.6
1931	55.9	21.8	26.5	47.4	24.4	13.2	6.2
1941	55.2	22.9	26.8	46.9	27.9	15.2	5.8
1951 ^a	54.5	24.4	33.7	48.8	25.4	19.8	4.5
1961 ^a	55.3	29.3	31.7	50.7	29.2	29.9	6.1
1951 ^b	54.3	24.2	33.4	48.5	25.1	19.6	4.4
1961 ^b	55.1	29.1	31.7	50.4	28.9	29.5	6.0

^a Excludes Newfoundland.

^b Includes Newfoundland.

SOURCE: Denton and Ostry, *Historical Estimates of the Canadian Labour Force*.

Table 8 – Population Growth and Its Components, Intercensal Decades, 1851-1961 (Numerical Growth)

Decade	Population at beginning of decade	Population at end of decade	Total increase	Births	Deaths	Natural increase	Immigration	Emigration	Net immigration
	'000	'000	'000	'000	'000	'000	'000	'000	'000
1851-1861	2,436	3,230	794	1,281	- 667	614	350	- 170	180
1861-1871	3,230	3,689	459	1,369	- 760	609	260	- 410	- 150
1871-1881	3,689	4,325	636	1,477	- 801	676	350	- 390	- 40
1881-1891	4,325	4,833	508	1,538	- 880	658	680	- 830	- 150
1891-1901	4,833	5,371	538	1,546	- 878	668	250	- 380	- 130
1901-1911	5,371	7,207	1,836	1,931	- 905	1,026	1,550	- 740	810
1911-1921	7,207	8,788	1,581	2,338	- 1,067	1,271	1,400	- 1,090	310
1921-1931	8,788	10,377	1,589	2,612	- 1,055	1,557	1,203	- 1,171	32
1931-1941	10,377	11,507	1,130	2,403	- 1,072	1,331	150	- 351	- 201
1941-1951 ^a	11,507	13,648	2,141	3,245	- 1,214	2,031	548	- 438	110
1951-1961 ^b	14,009	18,238	4,229	4,468	- 1,320	3,148	1,543	- 462 ^c	1,081 ^c
								- 644 ^d	899 ^d

^a Excludes Newfoundland.

^b Includes Newfoundland.

^c Based on residual estimate of emigration.

^d Based on estimate of emigration derived from immigration statistics of other countries.

SOURCES: See Appendix A and Tables 36 and 37.

Table 9 - Population Growth and Its Components, Intercensal Decades, 1851-1961 (Percentage Growth Rates)^a

Decade	Population at beginning of decade	Population at end of decade	Total rate of increase	Birth rate	Death rate	Rate of natural increase	Immigration rate	Emigration rate	Net immigration rate
	'000	'000	%	%	%	%	%	%	%
1851-1861	2,436	3,230	28.0	45.2	- 23.5	21.7	12.4	- 6.0	6.4
1861-1871	3,230	3,689	13.3	39.6	- 22.0	17.6	7.5	- 11.8	- 4.3
1871-1881	3,689	4,325	15.9	36.9	- 20.0	16.9	8.7	- 9.7	- 1.0
1881-1891	4,325	4,833	11.1	33.6	- 19.2	14.4	14.9	- 18.1	- 3.3
1891-1901	4,833	5,371	10.5	30.3	- 17.2	13.1	4.9	- 7.4	- 2.5
1901-1911	5,371	7,207	29.2	30.7	- 14.4	16.3	24.6	- 11.8	12.9
1911-1921	7,207	8,788	19.8	29.2	- 13.3	15.9	17.5	- 13.6	3.9
1921-1931	8,788	10,377	16.6	27.3	- 11.0	16.2	12.6	- 12.2	0.3
1931-1941	10,377	11,507	10.3	22.0	- 9.8	12.2	1.4	- 3.2	- 1.8
1941-1951 ^b	11,507	13,648	17.0	25.8	- 9.7	16.1	4.4	- 3.5	0.9
1951-1961 ^c	14,009	18,238	26.2	27.7	- 8.2	19.5	9.6	- 2.9 ^d	6.7 ^d
								- 4.0 ^e	5.6 ^e

^a All rates are calculated as percentages of average of population at beginning and end of period.

^b Excludes Newfoundland.

^c Includes Newfoundland.

^d Based on residual estimate of emigration.

^e Based on estimate of emigration derived from immigration statistics of other countries.

SOURCE: Based on figures in Table 8.

Table 10 - Labour Force Growth and Its Components, Intercensal Decades,
1851-1961 (Numerical Growth)

Decade	Labour force at beginning of decade	Labour force at end of decade	Total increase	Domestic supply	Immigration	Emigration	Net immigration
	'000	'000	'000	'000	'000	'000	'000
1851-1861	762	1,053	291	211	--	--	80
1861-1871	1,053	1,201	148	262	--	--	- 114
1871-1881	1,201	1,474	273	316	--	--	- 43
1881-1891	1,474	1,732	258	324	--	--	- 66
1891-1901	1,732	1,899	167	329	--	--	- 162
1901-1911	1,899	2,809	910	343	--	--	567
1911-1921	2,809	3,312	503	440	--	--	63
1921-1931	3,312	4,048	736	694	657	- 615	42
1931-1941	4,048	4,652	604	693	55	- 144	- 89
1941-1951 ^a	4,652	5,250	598	557	262	- 221	41
1951-1961 ^b	5,355	6,741	1,386	838	767	- 219 ^c	548 ^c
						- 305 ^d	462 ^d

^a Excludes Newfoundland.

^b Includes Newfoundland.

^c Based on residual estimate of emigration.

^d Based on estimate of emigration derived from immigration statistics of other countries.

SOURCES: See Appendix B for sources of basic data and methods of estimation.

Table 11 - Labour Force Growth and Its Components, Intercensal Decades,
1851-1961 (Percentage Growth Rates)^a

Decade	Labour force at beginning of decade	Labour force at end of decade	Total rate of increase	Domestic supply rate	Immigration rate	Emigration rate	Net immigration rate
	'000	'000	%	%	%	%	%
1851-1861	762	1,053	32.0	23.2	--	--	8.8
1861-1871	1,053	1,201	13.1	23.2	--	--	- 10.1
1871-1881	1,201	1,474	20.4	23.6	--	--	- 3.2
1881-1891	1,474	1,732	16.1	20.2	--	--	- 4.1
1891-1901	1,732	1,899	9.2	18.1	--	--	- 8.9
1901-1911	1,899	2,809	38.7	14.6	--	--	24.1
1911-1921	2,809	3,312	16.4	14.4	--	--	2.1
1921-1931	3,312	4,048	20.0	18.9	17.9	- 16.7	1.1
1931-1941	4,048	4,652	13.9	15.9	1.3	- 3.3	- 2.0
1941-1951 ^b	4,652	5,250	12.1	11.3	5.3	- 4.5	0.8
1951-1961 ^c	5,355	6,741	22.9	13.9	12.7	- 3.6 ^d	9.1 ^d
						- 5.0 ^e	7.6 ^e

^a All rates are calculated as percentages of average of labour force at beginning and end of period.

^b Excludes Newfoundland.

^c Includes Newfoundland.

^d Based on residual estimate of emigration.

^e Based on estimate of emigration derived from immigration statistics of other countries.

SOURCE: Based on figures in Table 10.

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Table 12 - Sex Composition of the Total Population and the Population 15-64 Years of Age, 1851-1961

Year	Both	Male	Female	Males per
	sexes			100 females
Total population				
	'000	'000	'000	
1851	2,436	1,250	1,186	105.4
1861	3,230	1,660	1,570	105.7
1871	3,689	1,869	1,820	102.7
1881	4,325	2,189	2,136	102.5
1891	4,833	2,460	2,373	103.7
1901	5,371	2,752	2,620	105.0
1911	7,207	3,822	3,385	112.9
1921	8,788	4,530	4,258	106.4
1931	10,377	5,375	5,002	107.5
1941	11,507	5,901	5,606	105.3
1951 ^a	13,648	6,904	6,744	102.4
1961 ^a	17,780	8,984	8,796	102.1
1951 ^b	14,009	7,089	6,921	102.4
1961 ^b	18,238	9,219	9,019	102.2
Population 15-64 years of age				
	'000	'000	'000	
1851	1,276	657	619	106.1
1861	1,761	908	853	106.4
1871	2,018	1,012	1,006	100.6
1881	2,473	1,245	1,228	101.4
1891	2,856	1,454	1,401	103.8
1901	3,254	1,677	1,576	106.4
1911	4,495	2,449	2,046	119.7
1921	5,344	2,789	2,555	109.2
1931	6,519	3,421	3,098	110.4
1941	7,540	3,890	3,650	106.6
1951 ^a	8,476	4,268	4,208	101.4
1961 ^a	10,416	5,255	5,161	101.8
1951 ^b	8,672	4,370	4,303	101.6
1961 ^b	10,655	5,379	5,276	102.0

^a Excludes Newfoundland.^b Includes Newfoundland.

SOURCES: Figures for 1881-1961 are from *1961 Census of Canada*, Vol. VII. Figures for 1851-71, which are also derived from Census sources, are taken from M.C. Urquhart and K.A.H. Buckley (ed.), *Historical Statistics of Canada*, The Macmillan Company of Canada Limited, Toronto, 1965.

Table 13—Population, by Age, 1851-1961

Year	Total	Under 5	5-9	10-14	15-19	20-24
	'000	'000	'000	'000	'000	'000
1851	2,436	451	346	298	277	223
1861	3,230	543	429	399	374	304
1871	3,689	541	519	476	408	351
1881	4,325	599	562	513	483	436
1891	4,833	611	592	554	521	482
1901	5,371	646	618	583	557	515
1911	7,207	890	785	702	686	712
1921	8,788	1,059	1,050	914	805	713
1931	10,377	1,075	1,133	1,074	1,040	912
1941	11,507	1,052	1,046	1,101	1,120	1,032
1951 ^a	13,648	1,663	1,351	1,095	1,028	1,062
1961 ^a	17,780	2,189	2,015	1,797	1,389	1,153
1951 ^b	14,009	1,722	1,398	1,131	1,058	1,089
1961 ^b	18,238	2,256	2,080	1,856	1,433	1,184
		25-34	35-44	45-54	55-64	65-69
		'000	'000	'000	'000	'000
1851		329	219	145	84	23
1861		454	297	199	129	42
1871		505	346	252	159	56
1881		603	429	314	210	79
1891		720	509	371	252	85
1901		799	630	448	304	106
1911		1,222	863	620	393	132
1921		1,343	1,163	799	521	172
1931		1,496	1,335	1,074	662	231
1941		1,811	1,436	1,227	914	308
1951 ^a		2,125	1,826	1,379	1,056	424
1961 ^a		2,429	2,341	1,839	1,265	477
1951 ^b		2,174	1,868	1,407	1,077	433
1961 ^b		2,481	2,390	1,879	1,289	487
						70 and over
						'000

^a Excludes Newfoundland.

^b Includes Newfoundland.

SOURCES: Figures for 1961 are from 1961 Census of Canada, Vol. VII. Figures for 1881-1951 are from 1951 Census of Canada, Vol. X. Figures for 1851-71, which are also derived from Census sources, are taken from Urquhart and Buckley (ed.), *Historical Statistics of Canada*.

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Table 14 - Percentage Distribution of Population, by Age, 1851-1961

Year	Total	Under 5	5-9	10-14	15-19	20-24	
		%	%	%	%	%	
1851	100.0	18.5	14.2	12.2	11.4	9.2	
1861	100.0	16.8	13.3	12.4	11.6	9.4	
1871	100.0	14.7	14.1	12.9	11.1	9.5	
1881	100.0	13.8	13.0	11.9	11.2	10.1	
1891	100.0	12.6	12.2	11.5	10.8	10.0	
1901	100.0	12.0	11.5	10.9	10.4	9.6	
1911	100.0	12.3	10.9	9.7	9.5	9.9	
1921	100.0	12.1	11.9	10.4	9.2	8.1	
1931	100.0	10.4	10.9	10.3	10.0	8.8	
1941	100.0	9.1	9.1	9.6	9.7	9.0	
1951 ^a	100.0	12.2	9.9	8.0	7.5	7.8	
1961 ^a	100.0	12.3	11.3	10.1	7.8	6.5	
1951 ^b	100.0	12.3	10.0	8.1	7.6	7.8	
1961 ^b	100.0	12.4	11.4	10.2	7.9	6.5	
		25-34	35-44	45-54	55-64	65-69	
		%	%	%	%	%	
1851		13.5	9.0	6.0	3.4	0.9	1.7
1861		14.1	9.2	6.2	4.0	1.3	1.7
1871		13.7	9.4	6.8	4.3	1.5	2.1
1881		13.9	9.9	7.3	4.9	1.6	2.5
1891		14.9	10.5	7.7	5.2	1.8	2.8
1901		14.9	11.7	8.3	5.7	2.0	3.1
1911		17.0	12.0	8.6	5.5	1.8	2.8
1921		15.3	13.2	9.1	5.9	2.0	2.8
1931		14.4	12.9	10.3	6.4	2.2	3.3
1941		15.7	12.5	10.7	7.9	2.7	4.0
1951 ^a		15.6	13.4	10.1	7.7	3.1	4.7
1961 ^a		13.7	13.2	10.3	7.1	2.7	5.0
1951 ^b		15.5	13.3	10.0	7.7	3.1	4.7
1961 ^b		13.6	13.1	10.3	7.1	2.7	5.0

^a Excludes Newfoundland.

^b Includes Newfoundland.

SOURCE: Based on figures in Table 13.

Table 15 - Numerical Increase in Population, by Age,
Intercensal Decades, 1851-1961

Decade	Total	Under 5	5-9	10-14	15-19	20-24
	'000	'000	'000	'000	'000	'000
1851-1861	794	92	83	101	97	81
1861-1871	459	- 2	90	77	34	47
1871-1881	636	58	43	37	75	85
1881-1891	508	12	30	41	38	46
1891-1901	538	35	26	29	36	33
1901-1911	1,836	244	167	119	129	197
1911-1921	1,581	169	265	212	119	1
1921-1931	1,589	16	83	160	235	199
1931-1941	1,130	- 23	- 87	27	80	120
1941-1951 ^a	2,141	611	305	- 6	- 92	30
1951-1961 ^a	4,132	526	664	702	361	91
1951-1961 ^b	4,229	534	682	725	375	95
	25-34	35-44	45-54	55-64	65-69	70 and over
	'000	'000	'000	'000	'000	'000
1851-1861	125	78	54	45	19	14
1861-1871	51	49	53	30	14	23
1871-1881	98	83	62	51	13	30
1881-1891	117	80	57	42	16	26
1891-1901	79	121	77	52	21	30
1901-1911	423	233	172	89	26	39
1911-1921	121	300	179	128	40	44
1921-1931	153	172	275	141	59	97
1931-1941	315	101	153	252	77	115
1941-1951 ^a	314	390	152	142	116	178
1951-1961 ^a	304	515	460	209	53	249
1951-1961 ^b	307	522	472	212	54	251

^a Excludes Newfoundland.

^b Includes Newfoundland.

SOURCE: Based on figures in Table 13.

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Table 16 - Percentage Increase in Population, by Age,
Intercensal Decades, 1851-1961

Decade	Total	Under 5	5-9	10-14	15-19	20-24
	%	%	%	%	%	%
1851-1861	32.6	20.4	24.0	33.9	35.0	36.3
1861-1871	14.2	- 0.4	21.0	19.3	9.1	15.5
1871-1881	17.2	10.7	8.3	7.8	18.4	24.2
1881-1891	11.7	2.0	5.3	8.0	7.9	10.6
1891-1901	11.1	5.7	4.4	5.2	6.9	6.8
1901-1911	34.2	37.8	27.0	20.4	23.2	38.3
1911-1921	21.9	19.0	33.8	30.2	17.3	0.1
1921-1931	18.1	1.5	7.9	17.5	29.2	27.9
1931-1941	10.9	- 2.1	- 7.7	2.5	7.7	13.2
1941-1951 ^a	18.6	58.1	29.2	- 0.5	- 8.2	2.9
1951-1961 ^a	30.3	31.6	49.1	64.1	35.1	8.6
1951-1961 ^b	30.2	31.0	48.8	64.1	35.4	8.7
	25-34	35-44	45-54	55-64	65-69	70 and over
	%	%	%	%	%	%
1851-1861	38.0	35.6	37.2	53.6	82.6	33.3
1861-1871	11.2	16.5	26.6	23.3	33.3	41.1
1871-1881	19.4	24.0	24.6	32.1	23.2	38.0
1881-1891	19.4	18.6	18.2	20.0	23.2	23.9
1891-1901	11.0	23.8	20.8	20.6	24.7	22.2
1901-1911	52.9	37.0	38.4	29.3	24.5	23.6
1911-1921	9.9	34.8	28.9	32.6	30.3	21.6
1921-1931	11.4	14.8	34.4	27.1	34.3	39.1
1931-1941	21.1	7.6	14.2	38.1	33.3	33.3
1941-1951 ^a	17.3	27.2	12.4	15.5	37.7	38.7
1951-1961 ^a	14.3	28.2	33.4	19.8	12.5	39.0
1951-1961 ^b	14.1	27.9	33.5	19.7	12.5	38.4

^a Excludes Newfoundland.^b Includes Newfoundland.

SOURCE: Based on figures in Table 13.

Table 17 - Labour Force, by Age^a and Sex, 1901-61

Year	Total, both sexes	'000	Male					
			'000	'000	'000	'000	'000	'000
1901	1,899	1,618	--	--	--	--	--	--
1911	2,809	2,390	--	--	--	--	--	--
1921	3,312	2,750	342	329	673	1,282	124	
1931	4,048	3,296	365	431	760	1,579	161	
1941	4,652	3,713	367	475	899	1,791	181	
1951 ^b	5,250	4,079	329	487	1,010	2,047	206	
1961 ^b	6,621	4,872	353	535	1,202	2,588	194	
1951 ^c	5,355	4,167	338	498	1,034	2,088	209	
1961 ^c	6,741	4,967	363	548	1,223	2,636	197	
Female								
		'000	'000	'000	'000	'000	'000	'000
1901	1,899	281	--	--	--	--	--	--
1911	2,809	419	--	--	--	--	--	--
1921	3,312	562	144	143	126	136	13	
1931	4,048	752	164	211	174	186	17	
1941	4,652	939	177	240	247	254	21	
1951 ^b	5,250	1,171	206	261	274	407	23	
1961 ^b	6,621	1,749	265	294	348	801	41	
1951 ^c	5,355	1,188	210	266	277	412	23	
1961 ^c	6,741	1,774	274	300	352	807	41	

^a Ages 10 and over for 1901-31; ages 14 and over for 1941-61.^b Excludes Newfoundland.^c Includes Newfoundland.SOURCE: Denton and Ostry, *Historical Estimates of the Canadian Labour Force*.

Table 18 - Percentage Distribution of Labour Force,
by Age^a and Sex, 1901-61

Year	Total, both sexes	Total	Under 20	20-24	25-34	35-64	65 and over
		%	Male				
	%	%	%	%	%	%	%
1901	100.0	85.2	--	--	--	--	--
1911	100.0	85.1	--	--	--	--	--
1921	100.0	83.0	10.3	9.9	20.3	38.7	3.7
1931	100.0	81.4	9.0	10.6	18.8	39.0	4.0
1941	100.0	79.8	7.9	10.2	19.3	38.5	3.9
1951 ^b	100.0	77.7	6.3	9.3	19.2	39.0	3.9
1961 ^b	100.0	73.6	5.3	8.1	18.2	39.1	2.9
1951 ^c	100.0	77.8	6.3	9.3	19.3	39.0	3.9
1961 ^c	100.0	73.7	5.4	8.1	18.1	39.1	2.9
	Female						
	%	%	%	%	%	%	%
1901	100.0	14.8	--	--	--	--	--
1911	100.0	14.9	--	--	--	--	--
1921	100.0	17.0	4.3	4.3	3.8	4.1	0.4
1931	100.0	18.6	4.1	5.2	4.3	4.6	0.4
1941	100.0	20.2	3.8	5.2	5.3	5.5	0.5
1951 ^b	100.0	22.3	3.9	5.0	5.2	7.8	0.4
1961 ^b	100.0	26.4	4.0	4.4	5.3	12.1	0.6
1951 ^c	100.0	22.2	3.9	5.0	5.2	7.7	0.4
1961 ^c	100.0	26.3	4.1	4.5	5.2	12.0	0.6

^a Ages 10 and over for 1901-31; ages 14 and over for 1941-61.^b Excludes Newfoundland.^c Includes Newfoundland.

SOURCE: Based on figures in Table 17.

Table 19—Numerical Increase in the Labour Force, by Age^a and Sex,
Intercensal Decades, 1851-1961

Decade	Total, both sexes	'000	Male				
			'000	'000	'000	'000	'000
1901-1911	910	772	--	--	--	--	--
1911-1921	503	360	--	--	--	--	--
1921-1931	736	546	23	102	87	297	37
1931-1941	604	417	2	44	139	212	20
1941-1951 ^b	598	366	-38	12	111	256	25
1951-1961 ^b	1,371	793	24	48	192	541	-12
1951-1961 ^c	1,386	800	25	50	189	548	-12
Female							
		'000	'000	'000	'000	'000	'000
1901-1911	910	138	--	--	--	--	--
1911-1921	503	143	--	--	--	--	--
1921-1931	736	190	20	68	48	50	4
1931-1941	604	187	13	29	73	68	4
1941-1951 ^b	598	232	29	21	27	153	2
1951-1961 ^b	1,371	578	59	33	74	394	18
1951-1961 ^c	1,386	586	64	34	75	395	18

^a Ages 10 and over for 1901-31; ages 14 and over for 1941-61.

^b Excludes Newfoundland.

^c Includes Newfoundland.

SOURCE: Based on figures in Table 17.

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Table 20 - Percentage Increase in the Labour Force, by Age^a and Sex,
Intercensal Decades, 1851-1961

Decade	Total, both sexes	Total	Under 20	20-24	25-34	35-64	65 and over
%							
Male							
1901-1911	47.9	47.7	--	--	--	--	--
1911-1921	17.9	15.1	--	--	--	--	--
1921-1931	22.2	19.9	6.7	31.0	12.9	23.2	29.8
1931-1941	14.9	12.7	0.5	10.2	18.3	13.4	12.4
1941-1951 ^b	12.9	9.9	-10.4	2.5	12.3	14.3	13.8
1951-1961 ^b	26.1	19.4	7.3	9.9	19.0	26.4	-5.8
1951-1961 ^c	25.9	19.2	7.4	10.0	18.3	26.2	-5.7
Female							
1901-1911	47.9	49.1	--	--	--	--	--
1911-1921	17.9	34.1	--	--	--	--	--
1921-1931	22.2	33.8	13.9	47.6	38.1	36.8	30.8
1931-1941	14.9	24.9	7.9	13.7	42.0	36.6	23.5
1941-1951 ^b	12.9	24.7	16.4	8.8	10.9	60.2	9.5
1951-1961 ^b	26.1	49.4	28.6	12.6	27.0	96.8	78.3
1951-1961 ^c	25.9	49.3	30.5	12.8	27.1	95.9	78.3

^a Ages 10 and over for 1901-31; ages 14 and over for 1941-61.^b Excludes Newfoundland.^c Includes Newfoundland.

SOURCE: Based on figures in Table 17.

Table 21 - Population, by Province or Territory, 1851-1961

Year	Canada	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Prairie Region ^a
	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000
1851	2,436	--	63	277	194	890	952	--	--	--	55	-	6	6
1861	3,230	--	81	331	252	1,112	1,396	--	--	--	52	-	7	7
1871	3,689	--	94	388	286	1,192	1,621	25	--	--	36	-	48	73
1881	4,325	--	109	441	321	1,359	1,927	62	--	--	49	-	56	119
1891	4,833	--	109	450	321	1,489	2,114	153	--	--	98	-	99	251
1901	5,371	--	103	460	331	1,649	2,183	255	91	73	179	27	20	440
1911	7,207	--	94	492	352	2,006	2,527	461	492	374	392	9	7	1,335
1921	8,788	--	89	524	388	2,361	2,934	610	758	588	525	4	8	1,964
1931	10,377	--	88	513	408	2,875	3,432	700	922	732	694	4	9	2,363
1941	11,507	--	95	578	457	3,332	3,788	730	896	796	818	5	12	2,434
1951 ^b	13,648	--	98	643	516	4,056	4,598	777	832	940	1,165	9	16	2,564
1961 ^b	17,780	--	105	737	598	5,259	6,236	922	925	1,332	1,629	15	23	3,202
1951 ^c	14,009	361	98	643	516	4,056	4,598	777	832	940	1,165	9	16	2,564
1961 ^c	18,238	458	105	737	598	5,259	6,236	922	925	1,332	1,629	15	23	3,202

^a Includes Manitoba, Saskatchewan, Alberta, and Northwest Territories.^b Excludes Newfoundland.^c Includes Newfoundland.

SOURCES: Figures for 1961 are from 1961 Census of Canada, Vol. VII. Figures for 1851-1951 are from 1951 Census of Canada, Vol. X.

Table 22—Percentage Distribution of the Population, by Province or Territory, 1851-1961

Year	Canada	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Prairie Region ^a	
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	
1851	100.0	--	2.6	11.4	8.0	36.5	39.1	--	--	--	2.3	--	0.2	0.2	
1861	100.0	--	2.5	10.2	7.8	34.4	43.2	--	--	--	1.6	--	0.2	0.2	
1871	100.0	--	2.5	10.5	7.7	32.3	43.9	0.7	--	--	1.0	--	1.3	2.0	
1881	100.0	--	2.5	10.2	7.4	31.4	44.6	1.4	--	--	1.1	--	1.3	2.7	
1891	100.0	--	2.3	9.3	6.6	30.8	43.7	3.2	--	--	2.0	--	2.0	5.2	
1901	100.0	--	1.9	8.6	6.2	30.7	40.6	4.8	1.7	1.4	3.3	0.5	0.4	8.2	
58	1911	100.0	--	1.3	6.8	4.9	27.8	35.1	6.4	6.8	5.2	5.4	0.1	0.1	18.5
1921	100.0	--	1.0	6.0	4.4	26.9	33.4	6.9	8.6	6.7	6.0	--	0.1	22.4	
1931	100.0	--	0.8	4.9	3.9	27.7	33.1	6.7	8.9	7.1	6.7	--	0.1	22.8	
1941	100.0	--	0.8	5.0	4.0	29.0	32.9	6.3	7.8	6.9	7.1	--	0.1	21.2	
1951 ^b	100.0	--	0.7	4.7	3.8	29.7	33.7	5.7	6.1	6.9	8.5	0.1	0.1	18.8	
1961 ^b	100.0	--	0.6	4.1	3.4	29.6	35.1	5.2	5.2	7.5	9.2	0.1	0.1	18.0	
1951 ^c	100.0	2.6	0.7	4.6	3.7	28.9	32.8	5.5	5.9	6.7	8.3	0.1	0.1	18.3	
1961 ^c	100.0	2.5	0.6	4.0	3.3	28.8	34.2	5.1	5.1	7.3	8.9	0.1	0.1	17.6	

^a Includes Manitoba, Saskatchewan, Alberta, and Northwest Territories.^b Excludes Newfoundland.^c Includes Newfoundland.

SOURCES: Same as Table 21. Calculations are based on unrounded data.

Table 23 - Numerical Increase in the Population, by Province or Territory, Intercensal Decades, 1851-1961

Decade	Canada	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Prairie Region ^a
	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000
1851-1861	793	-	18	54	58	221	444	--	--	--	- 3	-	1	1
1861-1871	460	--	13	57	34	80	225	25	--	--	- 15	-	41	67
1871-1881	636	--	15	53	36	168	306	37	--	--	13	-	8	45
1881-1891	508	--	-	10	-	130	187	90	--	--	49	-	43	133
1891-1901	538	--	- 6	9	10	160	69	103	91	73	80	27	- 79	188
1901-1911	1,835	--	- 10	33	21	357	344	206	401	301	214	- 19	- 14	895
1911-1921	1,581	--	- 5	31	36	355	406	149	265	214	132	- 4	2	630
1921-1931	1,589	--	- 1	- 11	20	514	498	90	164	143	170	-	1	399
1931-1941	1,130	--	7	65	49	457	356	30	- 26	65	124	1	3	71
1941-1951 ^b	2,141	--	3	65	58	724	810	47	- 64	143	347	4	4	130
1951-1961 ^b	4,132	--	6	94	82	1,204	1,639	145	93	392	464	6	7	638
1951-1961 ^c	4,229	96	6	94	82	1,204	1,639	145	93	392	464	6	7	638

^a Includes Manitoba, Saskatchewan, Alberta, and Northwest Territories.

^b Excludes Newfoundland.

^c Includes Newfoundland.

SOURCES: Same as Table 21. Calculations are based on unrounded data.

Table 24 - Percentage Increase in the Population, by Province or Territory, Intercensal Decades, 1851-1961

Decade	Canada	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Prairie Regions ^a
	%	%	%	%	%	%	%	%	%	%	%	%	%	%
1851-1861	32.6	--	29.0	19.5	30.1	24.9	46.6	--	--	--	- 6.3	--	17.4	17.4
1861-1871	14.2	--	16.3	17.2	13.3	7.2	16.1	--	--	--	- 29.7	--	617.4	994.4
1871-1881	17.2	--	15.8	13.6	12.5	14.1	18.9	146.8	--	--	36.4	--	17.6	62.1
1881-1891	11.8	--	0.2	2.2	--	9.5	9.7	145.0	--	--	98.5	--	75.3	111.8
1891-1901	11.1	--	- 5.3	2.0	3.1	10.8	3.2	67.3	--	--	82.0	--	- 79.7	74.8
1901-1911	34.2	--	- 9.2	7.1	6.3	21.6	15.8	80.8	439.5	412.6	119.7	- 68.7	- 67.7	203.6
1911-1921	21.9	--	- 5.5	6.4	10.2	17.7	16.1	32.2	53.8	57.2	33.7	- 51.2	25.1	47.2
1921-1931	18.1	--	- 0.7	- 2.1	5.2	21.8	17.0	14.8	21.7	24.3	32.3	1.8	14.4	20.3
1931-1941	10.9	--	8.0	12.7	12.0	15.9	10.4	4.2	- 2.8	8.8	17.8	16.2	29.1	3.0
1941-1951 ^b	21.8	--	3.6	11.2	12.7	21.7	21.4	6.4	- 7.2	18.0	42.5	85.1	33.1	5.3
1951-1961 ^b	30.3	--	6.3	14.7	15.9	29.7	35.6	18.7	11.2	41.8	39.8	60.8	43.7	24.9
1951-1961 ^c	30.2	26.7	6.3	14.7	15.9	29.7	35.6	18.7	11.2	41.8	39.8	60.8	43.7	24.9

^a Includes Manitoba, Saskatchewan, Alberta, and Northwest Territories.^b Excludes Newfoundland.^c Includes Newfoundland.

SOURCES: Same as Table 21. Calculations are based on unrounded data.

Table 25 - Rural-Urban Percentage Distribution of the Population,
1851-1961

Year	Total	Rural		Urban	
		%	%	%	%
1851	100.0	86.9		13.1	
1861	100.0	84.2		15.8	
1871	100.0	81.7		18.3	
1881	100.0	76.7		23.3	
1891	100.0	70.2		29.8	
1901	100.0	65.1		34.9	
1911	100.0	58.2		41.8	
1921	100.0	52.6		47.4	
1931	100.0	47.5		52.5	
1941	100.0	44.3		55.7	
1951 ^a	100.0	37.1		62.9	
1961 ^a	100.0	29.8		70.2	
1951 ^b	100.0	37.6		62.4	
1961 ^b	100.0	30.3		69.7	

^a Excludes Newfoundland.

^b Includes Newfoundland.

SOURCE: Leroy O. Stone, *Urban Development in Canada*, One of a Series of Labour Force Studies in the 1961 Census Monograph Programme, DBS, Ottawa, 1967. Stone's figures are based on census data which exclude the Yukon and Northwest Territories in all years.

Table 26 - Percentage Distribution of the Labour Force, by Agricultural and Non-agricultural Occupation Group, 1881-1961

Year	All occupations	Agricultural occupations		Non-agricultural occupations	
		%	%	%	%
1881	100.0	48.1		51.9	
1891	100.0	45.8		54.2	
1901	100.0	40.2		59.8	
1911	100.0	34.3		65.7	
1921	100.0	32.7		67.3	
1931	100.0	28.8		71.2	
1941 ^a	100.0	24.0		76.0	
1951 ^b	100.0	16.0		84.0	
1961 ^b	100.0	10.2		89.8	

^a Includes persons on active military service.

^b Excludes Newfoundland.

SOURCES: Figures for 1961 are based on occupational data in 1961 Census of Canada, Vol. VII. Figures for 1951 are based on occupational data in 1951 Census of Canada, Vol. X. Other figures are based on census data, too, but are taken from Urquhart and Buckley (ed.), *Historical Statistics of Canada*. In all cases the percentages are calculated from data which exclude the Yukon and Northwest Territories. The series is not strictly consistent throughout the period because of changes in classification but for the purposes for which the table is employed in this study this is not likely to be a major problem.

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Table 27 - Percentage Increase in the Labour Force, by Agricultural and Non-agricultural Occupation Group, and Effects of Farm-Nonfarm Shift, Intercensal Decades, 1881-1961

Decade	Total increase, all occupations	Agricultural occupations		Non-agricultural occupations	
		Total increase	Contribution of farm - non-farm shift	Total increase	Contribution of farm - non-farm shift
1881-1891	17.5	11.8	- 5.7	22.7	5.2
1891-1901	9.6	- 3.8	- 13.4	21.0	11.4
1901-1911	47.9	26.2	- 21.7	62.5	14.6
1911-1921	17.9	12.5	- 5.4	20.7	2.8
1921-1931	22.2	7.7	- 14.5	29.3	7.1
1931-1941	14.9	- 4.3	- 19.2	22.7	7.8
1941-1951 ^a	12.9	- 24.7	- 37.6	24.7	11.8
1951-1961 ^a	26.1	- 19.6	- 45.7	34.8	8.7

^a Excludes Newfoundland.

SOURCES: Estimates used in the calculations for this table were obtained by applying the agricultural-non-agricultural proportions in Table 26 to the total labour force figures in Table 2. For a description of the calculations themselves, see Appendix C.

Table 28 - The Civilian Labour Force, 1946-66^a

Year	Number of persons	Numerical increase	Percentage increase
	'000	'000	
1946	4,920	--	--
1947	5,035	115	2.3
1948	5,095	60	1.2
1949	5,136	41	0.8
1950	5,145	9	0.2
1951	5,200	55	1.1
1952	5,305	105	2.0
1953	5,397	92	1.7
1954	5,493	96	1.8
1955	5,610	117	2.1
1956	5,782	172	3.1
1957	6,008	226	3.9
1958	6,137	129	2.1
1959	6,242	105	1.7
1960	6,411	169	2.7
1961	6,521	110	1.7
1962	6,615	94	1.4
1963	6,748	133	2.0
1964	6,933	185	2.7
1965	7,141	208	3.0
1966	7,420	279	3.9

^a Annual averages, excluding Indians living on reserves and residents of the Yukon and Northwest Territories, as well as members of the armed services.

SOURCE: Based on DBS Labour Force Survey data. Figures for 1946-49 have been adjusted to include estimates for Newfoundland. Also, figures for 1946-52 include some adjustments to allow for the effects of differences in the frequency and timing of the Survey on the annual averages for this period. (The Survey was conducted more or less on a quarterly basis before November, 1952; since then it has been monthly.)

Table 29 - Civilian Labour Force Growth and Its Components, Quinquennial Periods, 1946-66 (Numerical Growth)

Period	Labour force at beginning of period	Labour force at end of period	Total increase	Domestic supply	Immigration	Emigration	Net immigration
	'000	'000	'000	'000	'000	'000	'000
1946-1951	4,920	5,200	280	204	235	- 159	76
1951-1956	5,200	5,782	582	272	399	- 89	310
1956-1961	5,782	6,521	739	501	367	- 129	238
1961-1966	6,521	7,420	899	784	260	- 145	115

SOURCES: Labour force totals are from Table 28. For sources of other basic data and methods of estimation, see Appendix B.

Table 30 - Civilian Labour Force Growth and Its Components, Quinquennial Periods,
1946-66 (Percentage Growth Rates)^a

Period	Labour force at beginning of period	Labour force at end of period	Total rate of increase	Domestic supply rate	Immigration rate	Emigration rate	Net immigration rate
	'000	'000	%	%	%	%	%
1946-1951	4,920	5,200	5.5	4.0	4.6	-3.1	1.5
1951-1956	5,200	5,782	10.6	5.0	7.3	-1.6	5.6
1956-1961	5,782	6,521	12.0	8.1	6.0	-2.1	3.9
1961-1966	6,521	7,420	12.9	11.2	3.7	-2.1	1.6

^a All rates are calculated as percentages of average of labour force at beginning and end of period.

SOURCE: Based on figures in Table 29.

Table 31—Increase in the Population, by Age, Quinquennial Periods,
1946-66

Age group	1946- 1951 ^a	1951- 1956	1956- 1961	1961- 1966
Numerical Increase ('000)				
Total, all ages	1,355	2,071	2,157	1,777
0- 4	374	261	273	- 59
5- 9	269	409	272	221
10-14	44	304	421	238
15-19	- 50	104	270	405
20-24	- 33	40	55	278
25-29	87	67	11	32
30-34	71	174	56	- 30
35-39	134	115	157	15
40-44	112	157	94	138
45-49	67	134	137	75
50-54	46	70	130	125
55-59	10	59	77	110
60-64	40	19	59	80
65-69	71	31	23	45
70 and over	112	127	124	104
Percentage Increase				
Total, all ages	11.0	14.8	13.4	9.7
0- 4	29.1	15.2	13.8	- 2.6
5- 9	24.9	29.3	15.1	10.6
10-14	4.2	26.9	29.4	12.8
15-19	- 4.6	9.9	23.3	28.3
20-24	- 3.0	3.7	4.8	23.5
25-29	8.6	5.9	0.9	2.7
30-34	7.5	16.6	4.6	- 2.4
35-39	15.9	11.5	14.0	1.2
40-44	15.2	18.1	9.1	12.3
45-49	10.1	18.0	15.5	7.3
50-54	7.7	10.6	17.8	14.5
55-59	1.9	10.3	12.2	15.7
60-64	8.6	3.7	11.2	13.7
65-69	20.2	7.1	5.0	9.2
70 and over	21.4	19.5	15.9	11.5

^a Excludes Newfoundland, Yukon, and Northwest Territories. In all other periods they are included.

SOURCES: Based on data from Censuses of 1951, 1956, 1961, and 1966, and on DBS intercensal estimates taken from *Population Estimates, 1921-1952*.

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Table 32—The Civilian Labour Force, by Sex, 1946-66^a

Labour Force	1946	1951	1956	1961	1966
Number of Persons ('000)					
Both sexes	4,920	5,200	5,782	6,521	7,420
Males	3,821	4,054	4,437	4,782	5,193
Females	1,099	1,145	1,346	1,739	2,227
Percentage Distribution					
Both sexes	100.0	100.0	100.0	100.0	100.0
Males	77.7	78.0	76.7	73.3	70.0
Females	22.3	22.0	23.3	26.7	30.0
Numerical Increase ('000)					
Both sexes	--	280	582	739	899
Males	--	233	383	345	411
Females	--	46	201	393	488
Percentage Increase					
Both sexes	--	5.7	11.2	12.8	13.8
Males	--	6.1	9.4	7.8	8.6
Females	--	4.2	17.6	29.2	28.1

^a See footnote ^a of Table 28.

SOURCE: Same as Table 28.

Table 33 - The Civilian Labour Force, by Region, 1946-66^a

Labour Force	1946	1951	1956	1961	1966
Number of Persons ('000)					
Canada	4,920	5,200	5,782	6,521	7,420
Atlantic Provinces	522	509	520	571	626
Quebec	1,334	1,459	1,615	1,820	2,116
Ontario	1,694	1,860	2,147	2,401	2,719
Prairie Provinces	963	941	998	1,154	1,248
British Columbia	405	429	503	575	710
Percentage Distribution					
Canada	100.0	100.0	100.0	100.0	100.0
Atlantic Provinces	10.6	9.8	9.0	8.8	8.4
Quebec	27.1	28.1	27.9	27.9	28.5
Ontario	34.4	35.8	37.1	36.8	36.6
Prairie Provinces	19.6	18.1	17.3	17.7	16.8
British Columbia	8.2	8.2	8.7	8.8	9.6
Numerical Increase ('000)					
Canada	--	280	582	739	899
Atlantic Provinces	--	-13	11	51	55
Quebec	--	125	156	205	296
Ontario	--	166	287	254	318
Prairie Provinces	--	-22	57	156	94
British Columbia	--	24	74	72	135
Percentage Increase					
Canada	--	5.7	11.2	12.8	13.8
Atlantic Provinces	--	-2.5	2.2	9.8	9.6
Quebec	--	9.4	10.7	12.7	16.3
Ontario	--	9.8	15.4	11.8	13.2
Prairie Provinces	--	-2.3	6.1	15.6	8.1
British Columbia	--	5.9	17.2	14.3	23.5

^a See footnote ^a of Table 28.

SOURCE: Same as Table 28.

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Table 34 - The Civilian Labour Force, by Agricultural and Non-agricultural Industry Group, 1946-66^a

Labour Force	1946	1951	1956	1961	1966
Number of Persons ('000)					
Total labour force	4,920	5,200	5,782	6,521	7,420
Agricultural	1,197	939	782	698	551
Non-agricultural	3,723	4,261	5,000	5,823	6,869
Percentage Distribution					
Total labour force	100.0	100.0	100.0	100.0	100.0
Agricultural	24.3	18.1	13.5	10.7	7.4
Non-agricultural	75.7	81.9	86.5	89.3	92.6
Numerical Increase ('000)					
Total labour force	--	280	582	739	899
Agricultural	--	- 258	- 157	- 84	- 147
Non-agricultural	--	538	739	823	1,046
Percentage Increase					
Total labour force	--	5.7	11.2	12.8	13.8
Agricultural	--	- 21.6	- 16.7	- 10.7	- 21.1
Non-agricultural	--	14.5	17.3	16.5	18.0

^a See footnote ^a of Table 28.

SOURCE: Same as Table 28.

Table 35 - Numerical Increase in the Civilian Labour Force, by Agricultural and Non-agricultural Industry Group, and Effects of Farm - Nonfarm Shift, Quinquennial Periods, 1946-66

Period	Total increase, all industries	Transfer from agriculture to non-agricultural industries	Agriculture		Non-agricultural industries	
			Actual increase	Increase assuming no transfer	Actual increase	Increase assuming no transfer
	'000	'000	'000	'000	'000	'000
1946-1951	280	326	- 258	68	538	212
1951-1956	582	262	- 157	105	739	477
1956-1961	739	184	- 84	100	823	639
1961-1966	899	243	- 147	96	1,046	803

SOURCE: Based on figures in Table 34. See Appendix C for a description of the calculations.

Table 36 – Comparison of Various Birth, Death, and Natural Increase Series, Intercensal Decades, 1851-1961

Decade	Births				Deaths (all ages)				Natural increase (all ages)				Natural increase (ages 10 and over)	
	DBS	K	CSW	R	DBS	K	CSW	R	DBS	K	CSW	R	K	M
	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000
1851-1861	1,281	1,281	1,280	--	611	611	670	--	670	670	610	--	495	464
1861-1871	1,369	1,369	1,370	--	718	718	760	--	651	650	610	--	563	543
1871-1881	1,477	1,477	1,480	--	754	754	790	--	723	720	680	--	619	575
1881-1891	1,538	1,538	1,540	--	824	824	870	--	714	714	660	--	669	617
1891-1901	1,546	1,546	1,550	--	828	828	880	--	718	719	670	--	654	595
1901-1911	1,931	1,931	1,930	--	811	811	900	--	1,120	1,120	1,030	--	711	631
1911-1921	2,338	2,338	2,340	--	988	988	1,070	--	1,350	1,349	1,270	--	916	841
1921-1931	2,415	2,403	2,420	2,610	1,055	917	1,060	1,052	1,360	1,486	1,360	1,558	1,389	1,348
1931-1941	2,294	2,248	2,290	2,400	1,072	1,006	1,070	1,072	1,222	1,242	1,220	1,328	1,352	--
1941-1951 ^a	3,186	--	3,190	3,238	1,214	--	1,220	1,219	1,972	--	1,960	2,019	--	--
1951-1961 ^b	4,468	--	4,470	--	1,320	--	1,320	--	3,148	--	3,150	--	--	--

^a Excludes Newfoundland.

^b Includes Newfoundland.

SOURCES: See Appendix A. Abbreviations used in column headings are: DBS for Dominion Bureau of Statistics; K for Keyfitz; CSW for Camu, Sametz, and Weeks; R for Ryder; and M for McDougall. In the case of the K and CSW series, natural increase is not exactly equal to the difference between births and deaths in every case, presumably because of rounding by the authors.

Table 37 - Comparison of Various Immigration and Emigration Series, Intercensal Decades, 1851-1961

Decade	Gross immigration					Gross emigration					Net immigration				
	DBS	K	M	CSW	R	DBS	K	M	CSW	R	DBS	K	M	CSW	R
	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000
1851-1861	209	209	486	350	--	85	86	332	170	--	124	123	154	180	--
1861-1871	187	186	266	260	--	379	376	436	410	--	-192	-191	-170	-150	--
1871-1881	353	353	253	350	--	440	438	293	390	--	-87	-85	-40	-40	--
1881-1891	903	903	448	680	--	1,109	1,108	602	830	--	-206	-205	-154	-150	--
1891-1901	326	326	249	250	--	506	507	364	380	--	-180	-181	-115	-130	--
1901-1911	1,759	1,782	1,111	1,550	--	1,043	1,066	317	740	--	716	715	794	810	--
1911-1921	1,612	1,592	1,373	1,400	--	1,381	1,360	1,067	1,090	--	231	233	306	310	--
1921-1931	1,203	1,198	--	1,200	1,204	974	1,095	--	970	1,174	229	103	142	230	30
1931-1941	150	149	--	150	151	242	262	--	240	353	-92	-112	--	-90	-202
1941-1951 ^a	548	--	--	550	568	379	--	--	370	437	169	--	--	180	131
1951-1961 ^b	1,543	--	--	1,540	--	462 ^c	--	--	460	--	1,081	--	--	1,080	--
						644 ^d									

^a Excludes Newfoundland.^b Includes Newfoundland.^c Residual estimate.^d Estimate based on immigration statistics of other countries.

SOURCES: Same as Table 36.

Appendices A - C

Appendix A

Alternative Estimates of the Components of Population Growth

Several alternative sets of estimates of the components of population growth are shown in Tables 36 and 37. Those included are ones prepared and published by Nathan Keyfitz, by Duncan M. McDougall, by Pierre Camu, E.P. Weeks, and Z.W. Sametz, by Norman Ryder, and by the Dominion Bureau of Statistics.²⁸ In all cases the estimates are for intercensal decades.

The Keyfitz Estimates — These extend from 1851-61 to 1931-41, although the calculations for 1921-31 and 1931-41 were regarded as mainly for purposes of comparison with estimates based on better data and thereby as a check on the methodology for earlier periods for which such data were not available. Life tables were used to estimate the number of deaths in each decade and the consequent number of persons expected to survive from one census to the next. The difference between expected survivors and recorded census population at the end of the decade was taken as an estimate of net immigration and the difference between this estimate of net immigration and the official total of gross immigration was then taken as an estimate of gross emigration. By working backward from the census population under 10 years of age recorded by the census at the end of the decade, and using life tables to estimate the mortality that had occurred in this group, the original number of live births during the decade was estimated on the assumption that migration in the group had been negligible. As no historical life tables were available for Canada, tables had to be constructed. This was done by projecting the Canadian life tables for 1931 and 1941 back to 1851 on the basis of the available series of English life tables, assuming constant ratios between English and Canadian life table probabilities, based on averages of the 1931 and 1941 Canadian tables.

The McDougall Estimates — McDougall used the same basic approach as Keyfitz in deriving estimates for the decades from 1851-61 to 1921-31. However, his procedures were different in two major respects. First, he used different procedures in calculating life tables. The English tables were used to project back through the latter half of the nineteenth century, as with

²⁸ These estimates are contained in the following articles or books, all of which have been cited previously: Keyfitz, "The Growth of Canadian Population;" McDougall, "Immigration into Canada, 1851-1920;" Camu, Weeks, and Sametz, *Economic Geography of Canada*; Ryder, "Components of Canadian Population Growth;" DBS, *Canadian Vital Statistics Trends, 1921-1954* and *Canada Year Book, 1957-58*.

Keyfitz, but the adjustments to these tables were based on their relationship to a United States table for 1901-10 covering the white population of the original death registration area of that country (ten states plus the District of Columbia). For the first decade of this century the American table was used by McDougall without adjustment and for the succeeding two decades his tables were estimated by linear interpolation between the American table for 1901-10 and the Canadian table for 1930-32. The variations in results ensuing from these differences in life table assumptions can be seen by comparing the last two columns of Table 36 in which are presented the Keyfitz and McDougall estimates of natural increase for the population 10 years of age and over (that is, 10 and over at the end of each intercensal decade). Whereas Keyfitz published estimates of births and deaths as well as natural increase, McDougall published only estimates of natural increase. It will be seen that in every case the McDougall estimates are lower than the Keyfitz estimates.

The second major difference between the Keyfitz and McDougall procedures lies in the treatment of immigration. Whereas Keyfitz accepted the official statistics, McDougall went to considerable trouble to improve on these by taking into account other information as well. Given the revised estimates of gross immigration, and the estimates of natural increase, emigration was then calculated residually, as in the case of the Keyfitz estimates.

The differences between the Keyfitz and McDougall estimates of natural increase and net immigration are not trivial but perhaps not unduly large in light of the paucity of data and the large element of assumption in the estimating procedures. (The differences between the two sets of natural increase estimates, on the one hand, and the two sets of net immigration estimates, on the other, are identical in magnitude but opposite in sign since net immigration is calculated as the residual after natural increase is deducted from total population increase.) However, the differences between the two sets of estimates of gross immigration and gross emigration are far greater. For example, the Keyfitz estimate of emigration in 1901-11 is 1,066,000 while the McDougall estimate is only 317,000. Thus the uncertainty about international population movements before 1921 is seen to be very great indeed. As Keyfitz has pointed out,²⁹ this is attributable in part to differences in the definition of an immigrant, that is, whether to count persons who ended up in the United States, and whose stay in Canada was brief, first as immigrants and then as emigrants, or whether to regard them merely as transients using Canada as a port of entry on their way to the United States, so to speak, and not count them at all. (Of course, this raises the further question of how brief is "brief." A day? A month? A year?)

²⁹ "Comment" (on McDougall's article), *op. cit.*

The DBS Estimates — Except for minor adjustments in a few cases, the series published by the Dominion Bureau of Statistics are the same as the Keyfitz series for decades before 1921. (Keyfitz did his work while at DBS and the two sets of published numbers are therefore based on virtually the same materials and procedures.) For decades since 1921 the historical DBS estimates are based on birth and death registration data. That is to say, reported births during each decade are added to the census population at the start of the decade and reported deaths are subtracted. The official counts of immigrants are also added and the remaining difference between the population total so obtained and the census total at the end of the decade is attributed to emigration.

The foregoing method is applicable only after the end-of-decade census figures have become available. For purposes of providing preliminary intercensal population figures, estimates of emigration are also calculated by the Dominion Bureau of Statistics on the basis of the *immigration* statistics of the United States, United Kingdom, and other countries. The relative reliability of these two approaches is open to discussion. On the one hand, the immigration statistics of other countries are less than perfect for estimating emigration from Canada because of lack of important detail, peculiarities of administrative procedures with respect to the classification of citizens returning from abroad, and so on, and for many countries to which Canadians may emigrate in substantial numbers no data are available at all and resort must be had to crude assumptions. On the other hand, however, it is known that censuses suffer from under-enumeration even today, and to the extent that the degree of under-enumeration varies from one census to the next there will be errors in the measurement of total population change. The residual method of emigration implicitly allocates any such errors to the emigration figures. Of course, there may be errors in the birth, death, and immigration components as well, and these, too, will affect residual estimates of emigration.

That the differences between the two methods of estimating emigration are not trivial is evidenced by the alternative estimates for the period 1951-61 shown in Table 37. These estimates differ by 182,000 or roughly two-fifths of the lower (residually estimated) figure.

The Ryder Estimates — Ryder has prepared estimates for the decades 1921-31, 1931-41, and 1941-51, using the official birth, death, and immigration figures. However, his estimates incorporate adjustments for under-registration of births. (They also include allowance for the omission of Quebec from the national vital statistics registration system in the period 1921-25 but such allowance is now included in the published DBS series as well.) These adjustments are necessarily very crude since information about the degree of under-registration is scanty. However, on the basis of the information that

was available to him,³⁰ Ryder assumed that registration was 94 per cent complete in 1931, 97 per cent complete in 1941, and (primarily as a consequence of the introduction of family allowances) 100 per cent complete in 1946 and thereafter. The adjustment ratios for other years were obtained by him by linear interpolation or extrapolation at a rate of 0.3 per cent per annum. The adjustments for birth registration affect the natural increase rates, of course, and they affect also the estimates of net immigration and gross emigration since these are derived residually.

The Camu-Weeks-Sametz Estimates — These are the most recent of the estimates described here and the authors were able to take advantage of the work done by others. Subject only to rounding and other minor differences, the DBS series were used for all components for decades since 1921. For earlier decades the Keyfitz-DBS series was used in the case of births. However, the immigration, emigration, and death series were re-estimated, taking into account the evidence furnished by the work of Keyfitz and McDougall and other evidence compiled by Sametz.

The Estimates Used in the Present Study — The approach taken for purposes of the present study is somewhat eclectic. For the period before 1921, the Keyfitz-DBS series is used for births. Immigration and emigration in the pre-1921 period are from Camu, Weeks, and Sametz. Natural increase and deaths are then calculated residually. In essence, this means that the series used here for decades before 1921 are the same as those used by Camu, Weeks, and Sametz in constructing their population balance sheet. The only differences are minor ones arising from rounding.

The Ryder birth series has been used for the 1921-31, 1931-41, and 1941-51 decades, subject to slight adjustments for geographic coverage. (Estimates for the Yukon and Northwest Territories were included.) Deaths are taken from the published DBS series and gross immigration from the official government statistics, as used also in the DBS calculations. Net immigration and gross emigration are then derived residually. For 1951-61, all figures are from the published DBS tables which are, of course, based on the official birth, death, and immigration counts. The two pairs of 1951-61 estimates of emigration and net immigration calculated by DBS are displayed in Table 37, the one derived residually and the other based on the immigration data of other countries.

The choice of estimates made here for the pre-1921 period is in large measure arbitrary. Because it is the most recent one and appears to be based on a careful weighing of evidence from a variety of sources, the Camu-Weeks-Sametz approach has been followed. However, it must be stressed that the dominant characteristic of any estimates for this period is their

³⁰ For the information that was available, see 1941 Census study by Enid Charles and 1931 Census study by W.R. Tracey, both cited above, n.6.

uncertain reliability. As for the post-1921 period, the choice is again somewhat arbitrary, although the range of uncertainty is much less. The Ryder adjustments for under-registration have been adopted here. Camu, Weeks, and Sametz have not followed Ryder in this respect, arguing that any adjustment for under-registration of births should be accompanied by an adjustment for under-registration of deaths if the estimates of natural increase and the residually derived migration components are not to be distorted. However, it has been assumed for present purposes that under-registration has been less serious in the case of deaths and, in the absence of information on which to base a correction, none has been attempted.

Appendix B

Estimation of the Components of Labour Force Growth

The estimates of the components of labour force growth are based on the estimates of population growth components, other population and migration data, and estimates of labour force participation rates. As a starting point, we consider the following general framework.

General Framework – Assume that all changes take place uniformly within a given period and let all stock variables (population, labour force) be considered as at the middle of the period and represented by the averages of their values at the beginning and end of the period. Let the subscript 0 stand for the beginning and the subscript 1 for the end of the period. For some particular age-sex group in the working-age range, a separation of labour force change into two components, one representing population change and the other representing change in participation, is accomplished by writing

$$L_1 - L_0 = \frac{1}{2}(p_1 + p_0)(N_1 - N_0) + \frac{1}{2}(N_1 + N_0)(p_1 - p_0)$$

where L stands for labour force, N for population, and $p = L/N$ for labour force participation rate. Now the population change is equal to the number of persons entering the group through ageing (A) minus the number departing through ageing or death (D) plus immigration (I) minus emigration (E):

$$N_1 - N_0 = A - D + I - E.$$

Assuming that in the given age-sex group the participation rates are the same for the migrant components as for the rest of the population, and simplifying the notation by writing $\bar{p} = \frac{1}{2}(p_1 + p_0)$, $\bar{N} = \frac{1}{2}(N_1 + N_0)$, $\Delta L = L_1 - L_0$, and $\Delta p = p_1 - p_0$, we have

$$\Delta L = \bar{p}(A - D) + \bar{p}I - \bar{p}E + \bar{N}\Delta p.$$

The first term on the right side represents additions to the labour force resulting from natural population change, the second and third terms represent additions through immigration and losses through emigration, and the fourth term represents the labour force change associated with changes in participation. (Note that deaths of immigrants are included in D and deaths of emigrants are excluded, so that D can not be regarded as a pure measure of "natural departures" from the age group, that is, departures that would have occurred in the absence of all migratory movement. However, as a practical

matter this is of negligible importance.) Attaching the subscript i to represent age-sex group and summing over all groups, the change in the total labour force is decomposed as follows:

$$\Sigma \Delta L_i = \Sigma \bar{p}_i (A_i - D_i) + \Sigma \bar{p}_i I_i - \Sigma \bar{p}_i E_i + \Sigma \bar{N}_i \Delta p_i.$$

Finally, if each term on both sides of this equation is divided by the average labour force in the period (\bar{L}_i) and multiplied by 100 we have a corresponding decomposition of the labour force percentage growth rate. (The average labour force is used for this purpose in preference to the labour force at the beginning of the period but the relationship would hold just as well if the latter were used.):

$$\frac{100 \sum \Delta L_i}{\bar{L}_i} = \frac{100 \sum \bar{p}_i (A_i - D_i)}{\bar{L}_i} + \frac{100 \sum \bar{p}_i I_i}{\bar{L}_i} - \frac{100 \sum \bar{p}_i E_i}{\bar{L}_i} + \frac{100 \sum \bar{N}_i \Delta p_i}{\bar{L}_i}.$$

The foregoing represents the essential framework within which the separation of the components of labour force change is conceived. However, some modifications have been made in practice. For one thing, no attempt has been made for any period to distinguish between the effects of natural population changes and changes in participation rates; the first and fourth terms on the right sides of the preceding two equations have been combined into a single component referred to as "domestic supply." For another, only the net effect of migration has been estimated for the pre-1921 period, rather than the separate effects of immigration and emigration.

The assumption that within each age-sex group, participation rates are the same for migrants and non-migrants is somewhat unsatisfactory. However, it would be difficult to estimate separate rates for the different groups with any degree of assurance from the information that is available. In any event, among the many problems of measurement which beset the type of analysis described here, this one probably does not rank very high.³¹

Estimates for Periods Since 1921 — Estimates have been prepared for each decade between 1921 and 1961 and for five-year periods from 1946 to 1966. In the case of the decennial estimates, the figures relate to the total labour force measured at census dates; in the case of the postwar quinquennial periods they relate to annual averages of the civilian labour force. In both cases the approach followed was to estimate the total labour force content of immigration and emigration and then subtract the difference between the two from the total labour force change to arrive at an estimate of the domestic supply component.

³¹ For discussion of differences between immigrants and non-immigrants, see N. H. W. Davis and M. L. Gupta, *Labour Force Characteristics of Post-War Immigrants and Native-Born Canadians*, DBS, Special Labour Force Studies, No. 6, Queen's Printer, Ottawa, 1968.

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In estimating the labour force content of immigration and emigration the first step was to construct, for each period, separate population balance sheets for men and women. For males and females separately, births were added to the population at the beginning of the period and deaths subtracted. Using official immigration statistics,³² total immigration for each sex was then subtracted from the remaining portion of population change and emigration thereby derived residually. (For the earliest years some element of estimation was involved. In particular, the sex distribution of immigrant children in the 1921-31 period was estimated on the basis of distributions in the period 1928-33. Also, in allocating total births among males and females it was assumed that the same adjustment for under-registration was applicable to both sexes.)

The next step was to calculate the age distributions of male and female immigrants and emigrants. Again the official immigration tabulations were used, with some estimation in cases where age categories did not coincide with those for which labour force estimates were available (and again using the 1928-33 distributions for the period 1921-31). The male and female age distributions were assumed to be the same for emigrants as for immigrants in all periods. While this assumption leaves something to be desired it appeared to be at least as good as any alternative assumption that might have been made. Also, it may be noted that the sex distribution of migrants is more crucial than the age distributions in the context of labour force estimation because of the big difference between the overall male and female participation rates.

Participation rates were then applied to the totals in each of the migrant age-sex groups and the results summed to get separate labour force totals for immigrants and emigrants. Averages of the participation rates at the start and end of each period were used. In these calculations it was assumed that immigration and emigration contained no "institutional population" so that participation rates calculated as ratios of labour force to non-institutional population rather than total population were the appropriate ones. Similarly, in the calculations for the quinquennial periods between 1946 and 1966, which pertain to the civilian labour force, it was assumed that migrants contained no members of the armed forces. (These represent departures from the strict assumption that the participation rates for migrants and non-migrants are identical, as discussed above.)

All participation rates are based on decennial estimates presented in another study in this series.³³ However, estimates had to be calculated for 1946, 1956, and 1966. For 1946 and 1956 these were calculated by linear

³² The relevant official immigration figures, by age and sex, are contained in various issues of the *Canada Year Book* and considerable historical detail is available also in Urquhart and Buckley, *op. cit.*

³³ Denton and Ostry, *Historical Estimates*.

interpolation between the 1941, 1951, and 1961 rates. (An adjustment was also made to allow for Newfoundland in 1946 since that province has been included in the calculations for all of the postwar quinquennial periods.) For 1966 the rates were calculated by extrapolating from 1961 on the basis of changes indicated by annual data from the DBS Labour Force Survey.

The age groups used in all of these calculations were 10-13, 14-19, 20-24, 25-34, 35-64, and 65 and over. The participation rates for the 10-13 group were assumed to be zero commencing with 1941.

It should be noted that since the labour force figures used in the calculations for quinquennial periods differ in source and definition, the estimates shown for 1951-56 and 1956-61 in Table 29 do not conform precisely with those shown for 1951-61 in Table 10.

Estimates for Periods Before 1921 — An initial attempt was made to carry out the estimation for the pre-1921 decades in the same general way as for the later periods. However, lack of reliable information on the age and sex distributions of migrants proved to be an insuperable obstacle and the attempt was abandoned. Instead, the following procedure was adopted. The age-sex distributions of natural increase estimated by Keyfitz³⁴ for the decades from 1851-61 on were used in conjunction with participation rates to estimate the labour force content of the natural increase. In the absence of any earlier estimates of participation rates by age group, the 1921 rates were used throughout. (As before, the age groups were 10-13, 14-19, 20-24, 25-34, 35-64, and 65 and over, making twelve age-sex groups in all.) The ratio of labour force content of natural increase to total natural increase for all ages combined was then calculated for each decade from the Keyfitz data and this ratio was multiplied by the corresponding estimate of total natural increase shown in Table 8, thus obtaining the final estimate of "domestic supply" for inclusion in Table 10. The labour force content of net immigration was then estimated by subtracting domestic supply from total labour force change. No further attempt was made to provide separate estimates of the gross immigration and emigration components.

³⁴ *The Growth of Canadian Population.*

Appendix C

Calculation of Farm-Nonfarm Manpower Transfers

The implicit transfer of manpower between the farm and non-farm sectors is calculated by comparing the actual changes in the two sectors with the changes that would have occurred had the overall rate of labour force growth obtained in both, which is the same as saying had the ratio of farm to non-farm labour force remained constant. Let the farm component of the labour force be represented by F , the non-farm component by R , and the total labour force by L , so that $L = F + R$. Attach subscripts 0 and 1 to represent the beginning and end, respectively, of some specified period. For the labour force as a whole, the increase during the period is $L_1 - L_0$ and the rate of growth is given by

$$g = \frac{L_1 - L_0}{L_0}.$$

If this rate of growth obtained in both sectors, that is, if there were no transfer of manpower (or change in proportionate shares), the farm labour force would increase by gF_0 and the non-farm labour force by gR_0 . But the actual increase is $F_1 - F_0$ in the one case and $R_1 - R_0$ in the other. The (implicit) transfer of manpower, then, is given by

$$T = gF_0 - (F_1 - F_0) = (1 + g)F_0 - F_1$$

or, alternatively, by

$$-T = gR_0 - (R_1 - R_0) = (1 + g)R_0 - R_1.$$

Furthermore, by manipulating these identities, the actual growth rate in each sector can be partitioned into a "normal" component (g) and a transfer component:

$$\frac{F_1 - F_0}{F_0} = g + \frac{T}{F_0}$$

$$\frac{R_1 - R_0}{R_0} = g - \frac{T}{R_0}.$$

Multiplying both sides of the equations by 100 gives a partitioning of the percentage increases, as in Table 27. In Table 35 the components are expressed in original form, that is, in terms of numbers of persons.

The calculations of Table 27 are based on the distribution of the total labour force into *occupational* categories — agricultural occupations in the one case and all non-agricultural occupations combined in the other. The estimated proportions are those of Table 26, and are derived from data provided by successive censuses since 1881.³⁵ The calculations of Table 35, on the other hand, are based on the distribution of the total labour force between farm and non-farm *industrial* divisions, as given in Table 34. The concepts of occupation and industry are, of course, quite different. However, the broad outlines of the farm-nonfarm shift are undoubtedly similar regardless of which concept is employed.

³⁵ Undoubtedly the consistency of these series over time is affected by changes in classification procedures and other problems. However, for present purposes they are considered adequate.

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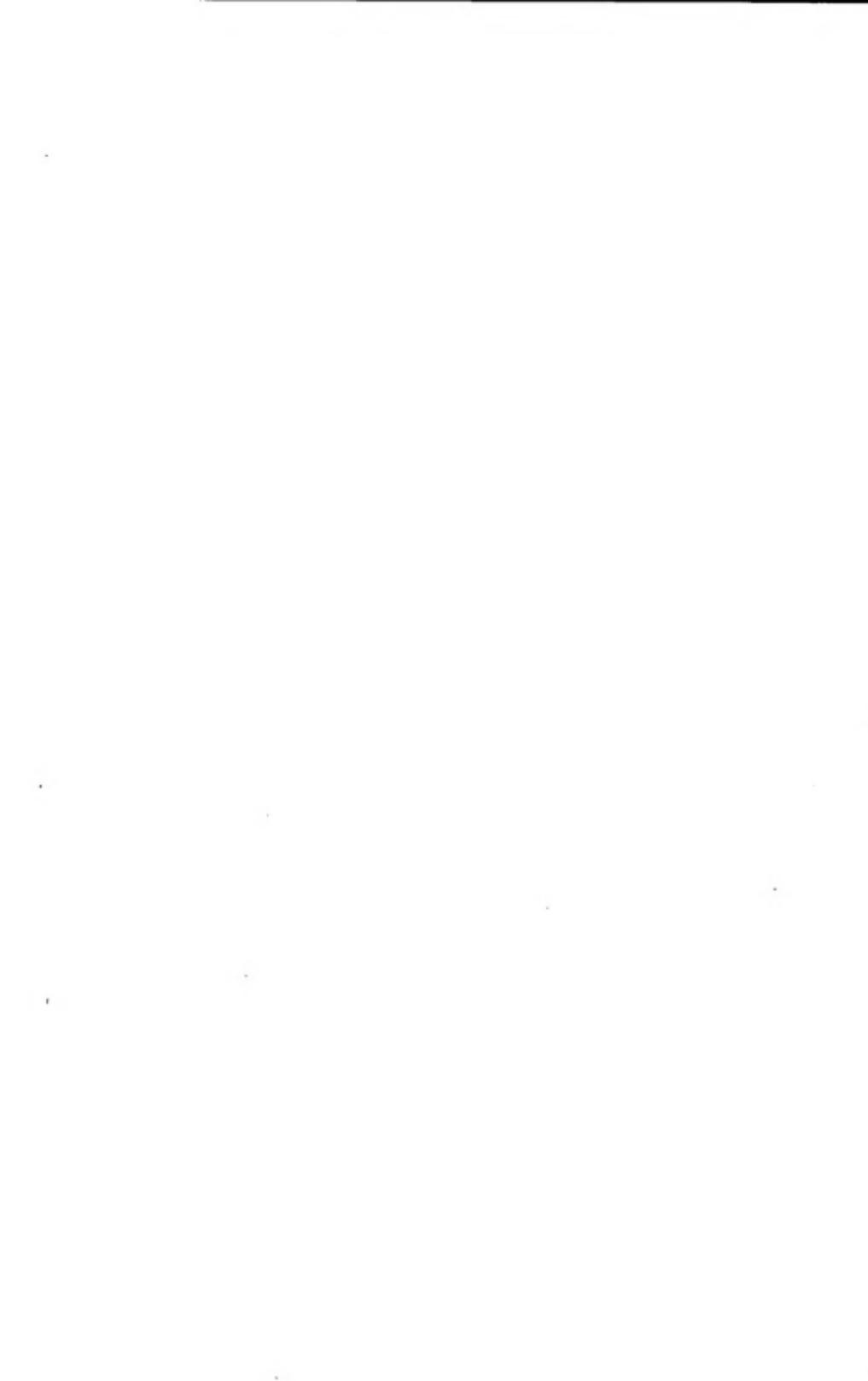
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Historical Estimates of the Canadian Labour Force — *Frank T. Denton*
 and Sylvia Ostry
Working Life Tables for Canadian Males — *Frank T. Denton and Sylvia Ostry*

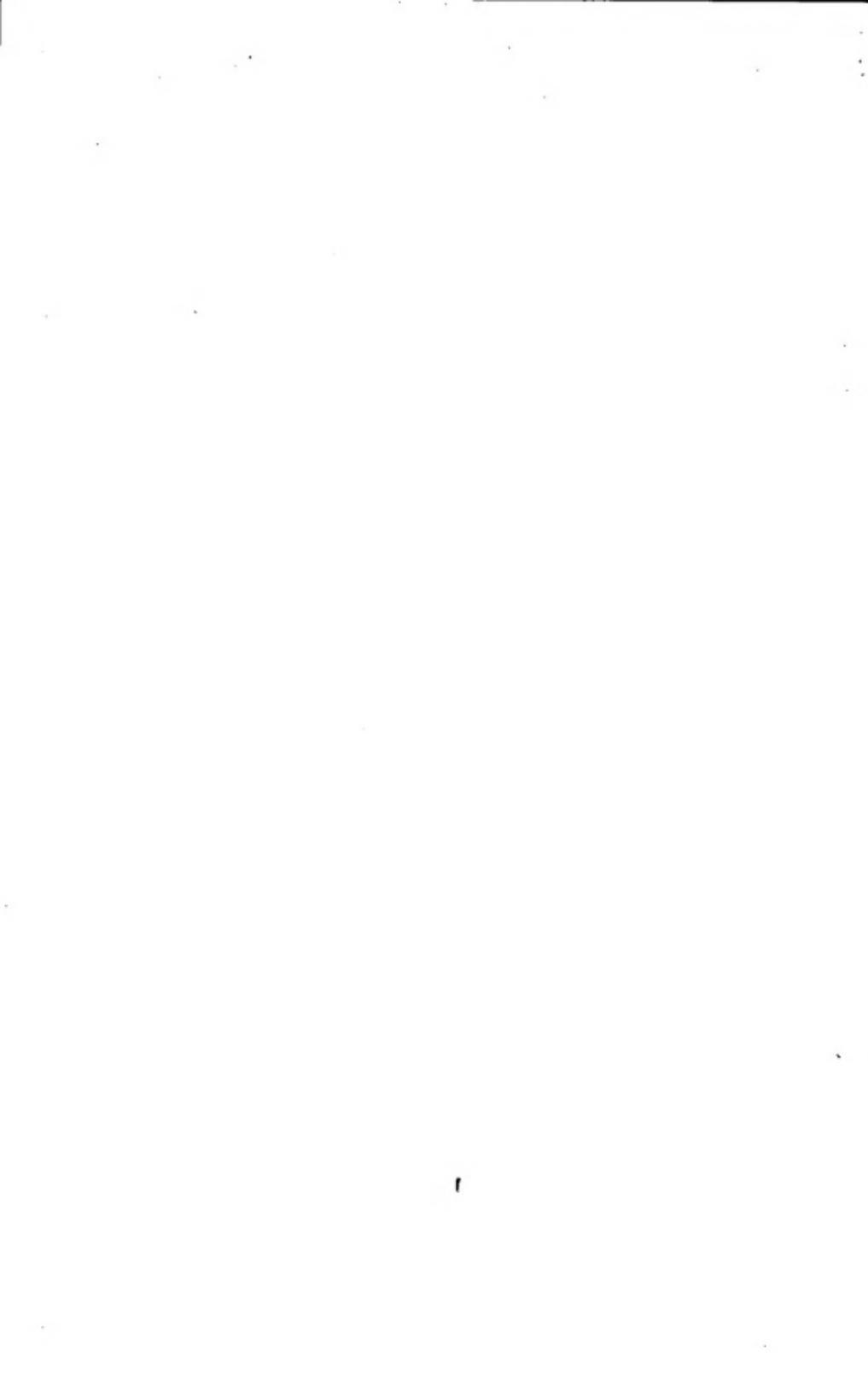
The following by *Sylvia Ostry* —
 Provincial Differences in Labour Force Participation
 The Occupational Composition of the Canadian Labour Force
 Unemployment in Canada
 The Female Worker in Canada
 Geographical Composition of the Canadian Labour Force

The Census Monograph studies listed above were published during 1968 and 1969 or were in the printing process at the end of the latter year. At that time, the sixth title was available in French only and the ninth and eleventh were available in English and French. The list will be augmented as work on other studies progresses. Copies may be secured from the Queen's Printer, Ottawa, or the Dominion Bureau of Statistics (Publications Distribution Unit).











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